THE SURVEY

News Bulletin of the Bureau of Biological Survey
United States Department of Agriculture.

Vol. I Washington, D.C., January 2, 1920. No. 1.

FOREWORD.

To meet a need presented by the growing organization of the Bureau of Biological Survey, I have authorized the issuance of a monthly house-organ, "THE SURVEY," the initial number of which is presented herewith. It is designed to serve not only as a medium of communication from administrative and operative heads regarding regulatory and related activities, but also to give information to office and field men regarding the progress of field investigations, new work undertaken, new methods of investigation and control, suggestions deemed to be of general helpfulness, movements of the staff, changes in field assignments, Bureau news of importance or of more than passing interest, and personal items of the same nature. This opportunity for exchange of information, I believe, will increase the interest of the personnel in the work of the Bureau as a whole and in each one's individual work as related to it.

To serve as a committee to assemble material for THE SURVEY, I have designated the following: W. C. Henderson, representing the Bureau as a whole; W. B. Bell, Economic Investigations; W. Roy Dillon, Migratory-Bird Treaty and Lacey Acts; Walter P. Taylor, Biological Investigations; and T. S. Palmer, Game Preservation. Editorial supervision will be in the hands of the Bureau editor, Wm. H. Cheesman. Matter which members of the headquarters or field forces desire to have appear in future issues should be turned in through the appropriate member of the committee.

May I not take this opportunity to express my personal appreciation of the high character of the services of the Bureau's personnel, and to extend to all the greetings of the new year.

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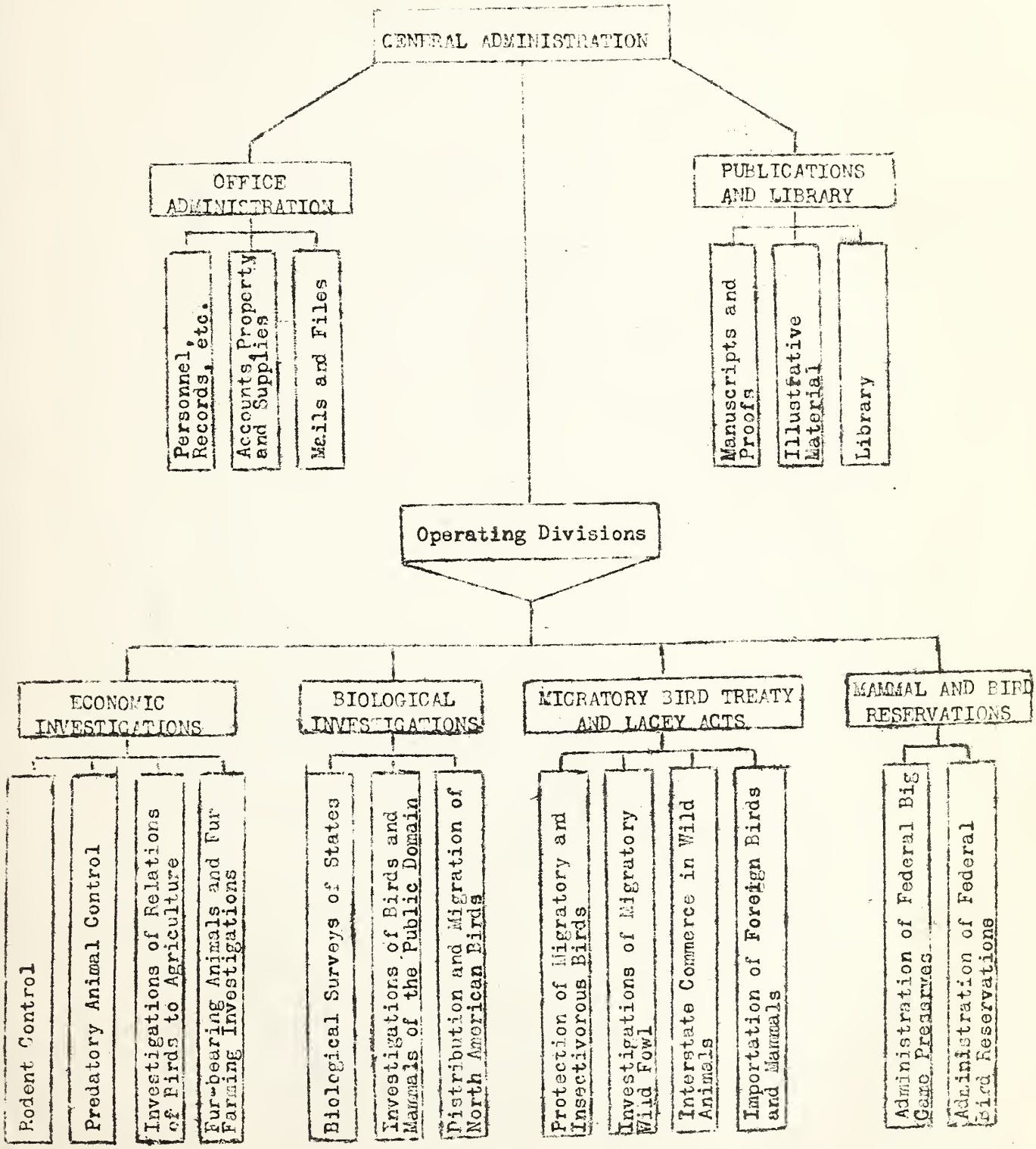
E W Nelson
Chief of Bureau.

ORGANIZATION OF THE BUREAU.

With a view to giving the personnel a graphic view of the organization of the Bureau and a list of the workers, there is presented on the next few pages - first, a chart showing the relationship of the various projects to each other; and second, a list of the workers in each project. The list is complete as regards the Washington office, but because of the numbers employed under the various field stations it has been impossible to give more than the names and addresses of the field men in charge. It is hoped in later numbers to give fuller treatment of the work in the various States in which the Bureau is operating.

ORGANIZATION OF THE BUREAU OF BIOLOGICAL SURVEY



PERSONNEL OF THE BUREAU.

GENERAL ADMINISTRATION.

E. W. Nelson, Chief of Bureau.
W. C. Henderson, Assistant Chief of Bureau.
Mrs. A. B. Morrison, Administrative Assistant.
Thos. E. Jacoby, Secretary to Chief.

OFFICE ADMINISTRATION.

E. J. Thompson, Chief Clerk.
H. M. Hoyt, Assistant to Chief Clerk.
Robert E. Sherfy, Stenographer.

Accounts, Property, and Supplies.

Herbert S. Ward, In Charge.
Arthur P. Weinerth, Property.
Anna Montgomery, Auditor.
Edward Muse, Auditor.
Joseph D. Denit, Payrolls.
Henry U. Stone, Bookkeeper.
Ernest R. Swanson, Bookkeeper.
Mrs. Shirley F. Abbott, Authorizations.
Vida E. Musser, Allotments.
Edward J. Down, Transportation Requests.
Della A. Knapp, Stenographer.
Chester P. McCubbin, Supplies.

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Roland E. Nairn, Assistant, Mails.
Philip S. McCubbin, Mails.
Jos. E. Schneider, Messenger.
Theo. R. Wheeler, Messenger.
Bertram L. Richardson, Messenger.

Labor Service.

Joanna Madigan.
Mary E. Hopkins.
Willie D. Williams.

PUBLICATIONS.

Wm. H. Cheesman, Editor and Librarian.
Blanche M. Yates, Editorial Clerk.
Nelson H. Kent, Photographer.
Joseph N. Colton, Typist.

DIVISION OF ECONOMIC INVESTIGATIONS.

A. K. Fisher, Assistant in Charge.
W. B. Bell, Assistant Biologist.
Lisle Morrison, Assistant.
Blanche L. Chadwell, Clerk.
F. N. Jarvis, Clerk.
Pauline Baird, Stenographer.
Idelia Ustrud, Stenographer.

RODENT CONTROL.

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D. A. Gilchrist, Biological Assistant, Box 765, Phoenix, Ariz.
F. E. Garlough, Biological Assistant, 2208 Durant Ave., Berkeley, Calif.
Joseph Keyes, Biological Assistant, 212 Custom House, Denver, Colo.
W. E. Crouch, Biological Assistant, Boise, Idaho.
Geo. A. Roosevelt, Biological Assistant, Bozeman, Mont.
E. R. Sans, Biological Assistant, Gazette,Bldg., Reno, Nev.
Duane Stonier, Biological Assistant, Box 131, Albuquerque, N. Mex.
A. B. Plummer, Biological Assistant, Fargo, N. Dak.
Benj. J. Melton, Biological Assistant, Lawton, Okla.
Ira N. Gabrielson, Assistant Biologist, Room 220 P.O.Bldg., Portland, Oreg.
Theo. H. Scheffer, Assistant Biologist, Puyallup, Wash.
E. F. Fribley, Biological Assistant, Biological Survey, Washington, D.C.

PREDATORY ANIMAL CONTROL.

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M. E. Musgrave, Predatory Animal Inspector, Box 765, Phoenix, Ariz.
L. B. Crawford, Predatory Animal Inspector, 212 Custom House, Denver, Colo.
R. E. Bateman, Predatory Animal Inspector, Billings, Mont.
E. R. Sans, Biological Assistant, Gazette Bldg., Reno, Nev.
J. Stokley Ligon, Predatory Animal Inspector, Box.131, Albuquerque, N. Mex.
Stanley G. Jewett, Predatory Animal Inspector, Pendleton, Oreg.

PREDATORY ANIMAL CONTROL-Cont'd.

C. R. Landon, Predatory Animal Inspector, 206 Central Natl. Bank, San Angelo, Tex.
Geo. E. Holman, Predatory Animal Inspector, 204 Atlas Bldg., Salt Lake City, Utah.
Chas. J. Bayer, Predatory Animal Inspector, Lander, Wyo.

RELATION OF BIRDS TO AGRICULTURE.

W. L. McAtee, Assistant Biologist.
E. R. Kalmbach, Assistant Biologist.
Alex. Wetmore, Assistant Biologist.
H. L. Viereck, Assistant Biologist.
F. P. Metcalf, Assistant Biologist.
E. O. Chapin, Assistant Biologist.
C. C. Sperry, Assistant.
W. F. Kubichek, Assistant Biologist.
L. L. Buchanan, Scientific Indexer.
J. W. Craven, Preparator.
L. O. Jackson, Scientific Indexer.
L. J. Dunworth, Stenographer.
Mrs. Elsie V. Beale, Preparator.

FUR-BEARING ANIMALS AND FUR FARMING.

Ned Dearborn, Assistant Biologist.
Karl B. Hanson, Assistant Biologist, Keeseville, N.Y.
Mary Farmer, Stenographer.

DIVISION OF BIOLOGICAL INVESTIGATIONS.

Edward A. Goldman, Assistant Biologist, In Charge.
Edward A. Preble, Assistant Biologist.
Mrs. Jane S. Elliott, Draftsman.
Ethel M. Johnson, Stenographer.
Mary B. Ferris, Stenographer.
Blanche M. Watson, Typist.
Charles H. M. Barrett, Taxidermist.

BIOLOGICAL SURVEYS OF STATES.

Vernon Bailey, Chief Field Naturalist (North Dakota and Oregon).
Arthur H. Howell, Assistant Biologist (Florida).
Hartley H. T. Jackson, Assistant Biologist (Wisconsin).
Edward A. Preble, Assistant Biologist (Montana).
Walter P. Taylor, Assistant Biologist (Washington).
George G. Cantwell, Field Assistant (Washington and Oregon), Puyallup, Washington.

DISTRIBUTION AND MIGRATION OF NORTH AMERICAN BIRDS.

Harry C. Oberholser, Assistant Biologist.
Francis Harper, Assistant Biologist.
May T. Cooke, Migration Records.
Anna McDiffett, Clerk.
Mrs. Nellie F. McAvoy, Clerk.

INVESTIGATIONS OF BIRDS AND MAMMALS OF THE PUBLIC DOMAIN.

Vernon Bailey, Chief Field Naturalist.
Arthur H. Howell, Assistant Biologist.
Hartley H. T. Jackson, Assistant Biologist.
Harry C. Oberholser, Assistant Biologist.
Edward A. Preble, Assistant Biologist.
Walter P. Taylor, Assistant Biologist.
Viola S. Schantz, Clerk.
Arthur H. Hardisty, Messenger.

ENFORCEMENT OF THE MIGRATORY-BIRD TREATY AND LACEY ACTS.

George A. Lawyer, Chief U. S. Game Warden, In Charge.
W. Roy Dillon, Assistant, Migratory Bird Protection.
W. F. Bancroft, Assistant, Interstate Commerce in Game.
F. L. Earnshaw, Assistant, Interstate Commerce in Game.
F. P. Callaghan, Executive Assistant.
Elton C. Hotchkiss, Clerk.
Mrs. Jennie M. Whippo, Stenographer.
Helen Miner, Stenographer.
Albert Frederick, Stenographer.

PROTECTION OF MIGRATORY BIRDS.
U. S. Game Wardens.

C. F. Asmuth,
200 West Water St., Milwaukee, Wis.
Alfred M. Bailey,
Juneau, Alaska.
Harry Barmeier,
2847 Victor St., St. Louis, Mo.
Wm. L. Birsch,
302 E. 2d St., Washington, N.C.
Thomas T. Bloxom,
Locustville, Va.
Eugene S. Cattron,
220 P.O.Bldg., Portland, Oreg.
Marquis A. Charlton,
285 E. 12th Ave., Columbus, Ohio.
Tudor H. Chisolm,
17 Water St., Charleston, S.C.
Irving C. Emmett,
2651 Van Buren Ave., Ogden, Utah.
Philip S. Farnham,
Owego, N.Y.
Phineas K. Hilliard,
110 Seaside Ave., Atlantic City, N.J.
John Q. Holmes,
Orleans, Nebr.
Miles S. B. Knights,
197 Main St., Annapolis, Md.
Samuel W. Linebaugh,
Russellville, Ky.
Bertram G. Merrill,
Hinsdale, Ill.
Geo. F. Mushbach,
Box 438, Billings, Mont.
R. J. Pacetti, (Deputy)
Ponce Park, Fla.
Webster H. Ransom,
708 W. 20th Ave., Spokane, Wash.
Burdette J. Shaver,
c/o State Game & Fish Comr.,
St. Paul, Minn.

PROTECTION OF MIGRATORY BIRDS-Cont'd.
U. S. Game Wardens.

Geo. C. Shupee,
Box 964, San Antonio, Tex.
Chas. P. S. Smith,
Biological Survey, Washington,D.C.
Albert Stadlmeir,
R. F. D. 100-A, Lackawanna, N.Y.
Geo. Tonkin,
Boise, Idaho.
Ernest P. Walker,
Phoenix, Ariz.
Ernest V. Visart,
2705 State St., Little Rock, Ark.

INVESTIGATION OF MIGRATORY WILD FOWL.

Harry C. Oberholser, Assistant Biologist.
Francis Harper, Assistant Biologist.
Alexander Wetmore, Assistant Biologist

IMPORTATION OF FOREIGN BIRDS AND MAMMALS.

T. S. Palmer, Expert in Game Conservation.
C. B. Milligan, Stenographer.
A. M. Winfield, Clerk.

Inspectors.

W. Dewitt Miller, Amer. Mus. Nat. Hist
New York, N.Y.
B. S. Bowdish, Demarest, N.J.
L. L. Bailey, 421 Chestnut St.,
Philadelphia, Pa.
Joseph Grinnell, Berkeley, Calif.
Harold C. Bryant, Berkeley, Calif.
Tracy I. Storer, Berkeley, Calif.

MAMMAL AND BIRD RESERVATIONS.

_____, In Charge.
C. B. Milligan, Stenographer.

Mammal Reservation Wardens.

* F. M. Dille, Reservation Inspector, Niobrara Reservation, Valentine, Nebr.
A. P. Chambers, Wind Cave Game Preserve, Hot Springs, S. Dak.
A. R. Hodges, National Bison Range, Moiese, Mont.
F. W. Triska (Asst. Warden), National Bison Range.
D. C. Nowlin, Winter Elk Refuge, Jackson, Wyo.
Bryan Nowlin, (Asst. Warden), Winter Elk Refuge.
Wm. S. Berry, Sullys Hill Game Preserve, Fort Totten, N. Dak.

Bird Reservation Wardens.

T. J. Ashe, Key West Reservation, Key West, Fla.
J. J. Furber, Klamath Lake Reservation, Klamath Falls, Oreg.
P. Kroegel, Pelican Island Reservation, Sebastian, Fla.
* B. J. Pacetti, Mosquito Inlet Reservation, Ponce Park, Fla.
Asa N. Pillsbury, Passage Key Reservation, Palma Sola, Fla.
Wm. M. Sprinkle, Breton Island Reservation, Pass Christian, Miss.
Theo. Teeters, Minidoka Reservation, American Falls, Idaho.
* Geo. M. Riddick, Big Lake Reservation, Hornersville, Mo.
* L. L. Bryan (Asst. Warden), Big Lake Reservation.
Geo. M. Benson, Malheur Lake Reservation, Narrows, Oreg.
Wm. O. Whitsett, Cold Spring Reservation, Hermiston, Oreg.
Geo. M. Wilson, Belle Fourche Reservation, Belle Fourche, S. Dak.
Gerrit P. Wilder, Hawaiian Islands Reservation, Honolulu, Hawaii.

* U.S. Deputy Game Warden.

GENERAL NOTES.

The regular monthly meeting of the scientific staff of the Biological Survey was held December 3, 1919, at the home of the Assistant Chief, Mr. Henderson. The evening was devoted to a symposium of summer field experiences, those leading in the discussion being Dr. Hartley H. T. Jackson, who spoke of the progress of the work in Wisconsin; Dr. W. B. Bell, who referred to the growth of the economic work of the Bureau, and spoke of the plans for cooperation in predatory animal work in North Dakota; Mr. Vernon Bailey, who spoke of his field work in North Dakota during September and October; Mr. A. H. Howell, who reported on the work in Florida; and Dr. George W. Field, who referred briefly to the critical conditions now surrounding Malheur and Lower Klamath bird reservations, and spoke also of the need for an adequate antelope and sage grouse reservation in southern Oregon.

Mr. H. S. Swarth of the Museum of Vertebrate Zoology, University of California, was present as a guest, and told of investigations recently completed by him and Mr. Joseph Dixon of that institution, along the Stikine River between Wrangell and Telegraph Creek, British Columbia, to determine the relation of the fauna of the arid interior to that of the humid coast belt.

On December 4, Mr. Nelson delivered an address at Syracuse, N.Y., on Federal and State Bird and Game Refuges, at the convention of the New York State Fish, Game, and Forest League.

The annual meeting of the American Ornithologists' Union, held in New York City, November 10-14, was attended by the Assistant Chief Mr. Henderson, Dr. A. K. Fisher, Dr. T. S. Palmer, Dr. H. C. Oberholser, Mr. Alexander Wetmore, Dr. G. W. Field, Mr. Francis Harper, and Miss May T. Cooke.

ECONOMIC INVESTIGATIONS.

The constant trapping and hunting for wolves, lions, and big bears in the forests in New Mexico during the last three years have greatly reduced the number of these animals, as well as almost wiped out the bobcats in some districts. The result is that the present year has been most favorable for a good increase in deer and turkey, as well as other game birds. It is but natural to expect a big increase in the game supply of the State during the next few years, if seasons are favorable.

During the last week in April, 1919, antelope were found distributed through the canyons and heavy timber of the Gila National Forest, northeast of Silver City. In previous years these animals have sought protection in the same locality, coming from the higher mesa country to the north to avoid the deep snow, but returning when conditions were favorable. This year they remained - probably because there were no wolves to molest them and drive them back.

A correspondent from Colorado writes that the pest work in his county this year has done as much to help the farmers as any bank could possibly do in the community. More money has been saved and greater results obtained than with any one proposition taken up by the farmers.

From a Washington State correspondent: "Two boys sleeping by a hay stack close to the farm house were attacked about 10 o'clock one night by a rabid coyote, the animal jumping on the bed and biting the quilts and tearing them in several places. It was finally driven away by being shot at in the dark while it was fighting the house dog. It went into the barn yard and killed 6 chickens and 2 hogs, besides stampeding a fine blooded herd of Jersey cows."

From a correspondent at Helena, Mont.: "While out in the Empire district looking after some of my mining claims in July I met five men putting out squirrel poison. They covered a large scope of country as they went back and forth. As this was on the forest reserve I took great interest in the work. I have had good results from this same kind of poison for a couple of years. I have heard some men say that it would fatten squirrels instead of killing them. I would like to have some of these men with me for one day on a trip I made just to satisfy myself. I walked two and one-half miles and returned, and I never saw so many squirrels lying dead on the top of the ground in my life. The ground looked like a battle-field. Since the Government is doing its part so well, we farmers should get our shoulders under a sack of poisoned oats next spring and start on the drive."

Dr. Fisher spent the period between September 16 and November 5 in reviewing field conditions in the Western States. He consulted with the predatory animal inspectors and assistants in charge of rodent control work, and with cooperators and stockmen. He found the work going on in a satisfactory manner with a growing interest in all sections in both lines of work.

In all suitable areas, he found a marked increase in the number of waterfowl. The general impression throughout the country credits this increase to the effectiveness of the Migratory Bird Treaty Act.

Dr. Ned Dearborn went to Seattle, Wash., in October to receive twelve blue foxes which were furnished by the Bureau of Fisheries from their stock on the Pribilof Islands. These animals are for experimental purposes on the fur farm of the bureau at Keeseville, N.Y. All of them reached Keeseville in good condition.

The Assistant Chief, Mr. Henderson, and Dr. Fisher expect to be in Spokane, Wash., the latter part of January to attend the twenty-second annual conference of the American National Live Stock Association.

At the request of the Forestry Department of the State of Pennsylvania, Dr. W. B. Bell visited Harrisburg November 6-7 to furnish expert information in regard to poison methods in controlling pests.

Dr. Dearborn attended the first exhibition of silver foxes by the American Silver Fox Breeders Association, at Boston, Mass., December 10.

Mr. S. E. Piper, Assistant Biologist and field leader in Economic Investigations work, will devote a considerable time during the present winter to assisting in poison campaigns for the destruction of coyotes on the sheep ranges of Wyoming and Utah.

Mr. W. L. McAtee lectured on December 10 before the class in game breeding at the New York State College of Agriculture, Ithaca, N. Y., on "Plants Attractive to Wild Ducks."

Mr. Wesley F. Kubichek visited Currituck Sound and Back Bay, Va., November 17-22, to investigate reports of damage to the ducking grounds occasioned by the large number of swans in that section.

Mr. Leon L. Gardner, a temporary employee of the Bureau, conducted an interesting experiment in Klickitat County, Wash., during the past season in connection with the control of crows that were menacing the almond crop of that section. Green almonds poisoned with strychnine were found to be a satisfactory bait.

Since the first of July Messrs. James Silver, R. T. Jackson, J. G. Crick, and U. S. Ebner have resigned from rodent control work; and Mr. E. F. Averill from predatory animal work, to enter into private business.

Born to Mr. and Mrs. Earl F. Fribley, a daughter, Eleanor Amy, October 31, 1919.

BIOLOGICAL INVESTIGATIONS.

Special attention has been directed to certain problems in North Dakota mammalogy by Mr. Vernon Bailey, who brought a number of live animals to Washington for the purpose of studying their habits. Mr. Bailey exhibited these mammals, which include Geomys, Microtus, 4 Perognathus, and 3 Peromyscus, at the meeting of the Biological Society of Washington, Saturday night, November 29. A considerable amount of interesting and significant information concerning the habits and relations of these mammals has already been gained.

In spite of a typical North Dakota blizzard, with the accompanying uncomfortable weather conditions, Mr. Bailey was this year successful in definitely locating the bean mouse of North Dakota, the activities of which were mentioned by Lewis and Clerk, Maximilian, and others. This proves to be a new subspecies of Microtus pennsylvanicus.

He continued his work through September and October to get data on the hibernation of mammals and the stores of food laid up for winter by nonhibernating species.

The Biological Survey of Florida was continued during the spring of 1919 by Mr. Arthur H. Howell. Field studies were carried on during March and April over a large part of Lee County, and in the region around Lake Okechobee. The collections in the Florida State Museum were examined and the specimens carefully identified. A collection of bird records from Florida, both published and unpublished, shows approximately 390 species and subspecies recorded from the State.

Dr. Hartley H. T. Jackson was occupied throughout the summer season in work on the biological survey of Wisconsin. Investigations this year were carried forward principally in the extreme northwestern part of the State, especial attention being devoted to the Apostle Islands in Lake Superior. The work was begun May 15 and continued until September 20. The Wisconsin Geological and Natural History Survey is cooperating with the Biological Survey in this work, Prof. George Wagner of the University of Wisconsin being in charge of the work pertaining to the State organization. Mr. Harry H. Sheldon, of the Biological Survey, and Mr. Arthur J. Poole, of the Wisconsin Survey, assisted throughout the season, and Mr. Frank N. Whitman accompanied the party for two weeks.

The field work in the State of Washington has been carried forward during the season just past under the general direction of Dr. Walter P. Taylor. Cooperating at different times with the Biological Survey in the field work were Prof. William T. Shaw, State College of Washington, Pullman; Prof. H. S. Brode, Whitman College, Walla Walla; Prof. J. W. Hungate, State Normal School, Cheney; Prof. J. B. Flett, National Park Service, Longmire; Mr. William L. Finley and Mrs. Finley, Portland, Oreg.; and Mr. Stanton Warburton, Jr., of Tacoma, Wash.

The Biological Survey was represented for a part of the time by Mr. Stanley G. Jewett, predatory animal inspector, Oregon, and throughout the season by Mr. George G. Cantwell, field assistant, Puyallup, Washington, and Dr. Taylor. Investigations were made in the Blue Mountain area of extreme southeastern Washington, in which occurs an unusual mixture of the Rocky Mountain and Cascade Mountain types, and in Mount Rainier National Park, in connection with which the circuit of Mount Ranier was made for the first time, so far as is known, by any vertebrate zoological expedition.

Mr. George G. Cantwell is at present engaged in working the bunch grass and sagebrush country of eastern Washington. While birds are reported to be scarce, a number of mammals of considerable interest are being collected, and much valuable data on the winter habits of animals of this region is being gathered.

Mr. Howell will proceed to Florida about the middle of December and continue his work on the Survey of that State. Investigations will be carried on along the Gulf coast near St. Marks and in Chassahowitzka Bay, below Homosassa, where particular attention will be given to the wintering waterfowl.

In Montana, Mr. Marcus A. Hanna, assisted by Mr. Harry Malleis, under the general direction of Mr. Edward A. Preble, worked the valley of the Missouri and the bordering plains and mountains from the mouth of Milk River westward. The Little Rockies, Moccasin Mountains, Big and Little Belt Mountains, and Castle Mountains were visited during the latter part of the summer. Mr. Victor N. Householder was a member of the party during the early part of the season.

Dr. H. C. Oberholser was in St. Louis, Mo., on December 19, and lectured before the Audubon Society of Missouri on "Waterfowl and Their Protection."

Mr. H. H. Sheldon, formerly in charge of the mammal collection of the Biological Survey, has resigned, and is ranching at Carpinteria, California.

MIGRATORY BIRD TREATY AND LACEY ACTS.

On October 28, Mr. E. V. Visart, United States Game Warden, Little Rock, Ark., apprehended 26 persons who, contrary to the Migratory Bird Treaty Act, were hunting and killing wild ducks in Lonoke County, Ark. This is the greatest number of arrests made by a United States Game Warden in any one day. Mr. Visart crowded as many of the violators into his automobile as possible and carried them to the office of the United States Commissioner. He took names and addresses of others, who later appeared. Twenty-five of these cases have been closed by the payment of the fines and costs assessed by Federal Judge Jacob Treiber. In 22 cases a fine of $20 each was assessed while in 3 cases the fine was $10 each. The costs taxed against and paid by each defendant were $11.40.

The first actual arrest under the Act for hunting waterfowl from an airplane was made on November 15 by United States Game Warden S. W. Linebaugh, Russellville, Ky. The two persons arrested were hunting and killing wild geese from an airplane in the vicinity of La Forge, Mo. Their methods were spectacular to the last, as they made the trip to the United States Commissioner's office at Caruthersville, Mo., in their plane. They probably will be arraigned at the next term of court.

A Connecticut game-law violator, who for a number of years has been a source of trouble to both State and Federal officials, was arrested at New Haven, Conn., on November 24, 1919, by the State Superintendent of the Board of Fisheries and Game, Hartford, Conn. He was charged with the shipping of certain quail, grouse, and woodcock from Blackstone, Mass., billed to New York City, which shipment had been seized en route at New Haven. The shipment was first discovered and reported to the Bureau and to the Connecticut game officials by the State Commissioner of Birds, Providence, R. I. Inasmuch as the shipment of the birds was also in violation of section 4 of the Migratory Bird Treaty Act, the matter was handled through the Federal Court. On December 3, the offender was arraigned, plead guilty, and was sentenced to three months in the county jail. United States Game Warden Albert Stadlmeir, of Lackawanna, N.Y., assisted the State officials in the prosecution.

Mr. George A. Lawyer, Chief United States Game Warden, who has been on an extended administrative trip, reached the Pacific Coast the middle of October. He left Washington, D.C., September 22, over the northern route and is returning via the southern route.

Capt. W. F. Bancroft, Assistant, Interestate Commerce in Game, who was discharged from the regular Army on September 2, 1919, returning to the Bureau September 3, has been commissioned a captain in the Officers Reserve Corps, Q.M.C., but is subject to active duty only when officially called upon by the War Department.

MAMMAL AND BIRD RESERVATIONS.

Dr. George W. Field, who has been in charge of the administration of National Mammal and Bird Reservations since September 1916, resigned on December 6, to become a scientific expert under the Brazilian Government. His new duties will be connected with the organization and development of certain natural resources of Brazil, particularly the fisheries. A considerable portion of his time will be spent in a general survey of conditions. He leaves for Brazil on January 12 and expects to be gone for some years. The best wishes of the staff of the Survey go with him in his new enterprise.

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THE SURVEY

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United States Department of Agriculture.

Vol. 1 Washington, D. C., February, 1920 No.2

THE SURVEY is issued for office and field men of the Biological Survey under authorization of the Chief of Bureau as a medium for furnishing information regarding the work of the Bureau, movements of the staff, changes in assignments, and news and personal items of importance, with a view to increasing the interest of the personnel in the work of the Bureau as a whole and in each one's individual work as related to it. Items which members of the force desire to have appear in future issues should be handed in through the appropriate member of the Committee on THE SURVEY, as follows; W. C. Henderson, representing the Bureau as a whole; W.B. Bell, Economic Investigations; W. Roy Dillon, Migratory-Bird Treaty and Lacey Acts; Walter P. Taylor, Biological Investigations; Wm. H. Cheesman, Editor.

GENERAL NOTES

The first issue of THE SURVEY was enthusiastically received by members of the office and field force, and many letters of commendation from the latter have been received. A limited number of copies of that issue are available for any employee receiving this number but not the initial one. Make your request early.

In line with editorial plans as announced last month there is presented in the last few pages of this issue, for ready reference, a directory of the Biological Survey arranged by States, this number covering the area west of the Mississippi River. The March issue will include a similar directory covering the States east of the Mississippi.

In order that new employees, as well as others, may know the nature of publications of the Bureau, there is inserted, as the last two pages preceding the directory, a list of publications available for free distribution, revised to January 1. In addition to those listed, the Bureau publishes technical reports on biological surveys of areas, life zones, and revision of genera of mammals in the series "North American Fauna", most of which are now out of print.

The January meeting of the scientific staff was held January 17, 1920, at the home of Mr. E. R. Kalmbach, of the Economic Investigations Division. The program consisted of a continuation of the informal symposium of summer field experiences, those leading in the discussion being Dr. Walter P. Taylor, who gave a resume of the work in Mount Rainier National Park; Dr. A. K. Fisher, who outlined his summer's trip, during which he visited eleven Western States; Dr. A. Wetmore, who described his work in the Gila Valley, Arizona, where he arrived in June to investigate reported depredations of the white-winged dove; and the Chief, Mr. Nelson, who spoke of the hearings before the House Committee on Agricultural Appropriations, stating that he was asked to submit figures on a project to include investigations of reindeer in Alaska and promotion of the industry in general, and that machinery has been set in motion for the transfer to this Bureau of fur-bearing land mammals in Alaska from the Bureau of Fisheries, Department of Commerce. Mr. Wm. H. Cheesman succeeds Dr. Taylor as Secretary of the Committee on Staff Meetings, Dr. Taylor having requested to be relieved of the duties after two years service; the other members of the Committee are Dr. A. K. Fisher, and Mr. Vernon Bailey.

GENERAL NOTES

At a meeting of the Biological Society of Washington on January 10, some interesting notes were presented by Dr. W. P. Taylor on the altitudinal distribution of mammals in the Mount Ranier National Park, and by Dr. T. S. Palmer on the status of the study of fossil birds in this country.

The following item is from the Weekly Bulletin of the Forest Service, District 3, December, 1919.-

THAT JOB OF YOURS.

The same job that Caesar held, Nero held. The same job that Hugh Chalmers held, forty namesless clerks occupied. A job is only a place for a man. A little man can rattle around in a big job, but a big man in a little job soon makes that job big. Before you make that change think it over--perhaps that job of yours is big enough to develop in. Ask yourself these questions:

What happened to the men I know who continually changed jobs ?

What happened to those I know who stuck and worked?

Am I big enough for my job? How can I make myself bigger?

Am I getting the most out of my job? Am I developing my job? Am I making it bigger? Do I see all its possibilities? Am I getting all that it can offer in training, experience, growth?

Jumping around from one job to another will ultimately drag any man down to the bottom of the ladder and make him a stepping stone for the real stickers and climbers in the game of business.

When you feel the fancied greater opportunities of other fields tugging at your sleeve, just hold a short communion with yourself and remember that it's the man and not the job which achieves success.

You will then decide that there is plenty of opportunity in the work you are doing, and that you make more opportunities by the spirit you put into your task every day of the year.

The fellow who attempts to dodge that fact is only kicking progress in the shins.

Employees of the Biological Survey frequently read items in daily or weekly newspapers relating to wild life or the work of the Biological Survey that would not reach press-clipping services. Such items may be useful to the Bureau, and with a little cooperation they may be made promptly available. To this end it is suggested that when such notices come to the attention of members of the staff, either in Washington or in the field, they be clipped and mailed to the Bureau. They may be either attached to a slip of paper on which may be written the name of the paper from which clipped, the date, and the name of the person clipping it, or this information may be written on the margin of the clipping. If pasted to a piece of paper, the pasting should be done a little above the item in order that the whole item may be removed unmutilated if found to be of permanent value.

The following letter, dated January 15, 1920, addressed to the Secretary of the Pennsylvania War History Commission, explains the war activities of this Bureau and the connection of Mr. A. W. Moore, of the Rodent Control work in Arizona with the War History of Pennsylvania:

In reply to your letter of January 12, 1920, relative to the work performed in Pennsylvania or by Pennsylvanians in connection with the war activities of this Bureau, I would advise that as our operations along this line were chiefly in the

West, there is little to record in so far as Pennsylvania is directly concerned. Our war activities centered mainly in a program for the eradication of injurious native and introduced rodents, and for the destruction of predatory animals, the aim being twofold: (1) to increase food production by destroying the natural enemies of growing crops and of livestock; (2) to reduce food waste by decreasing the number of rodents which prey upon stored crops. So far as our records show, the only Pennsylvanian engaged on this work was Mr. A. W. Moore, who during the period of the war was one of our field foremen in rodent control operations in New Mexico, partly in the employ of the Bureau and partly paid from cooperative funds furnished by the State of New Mexico. Mr. Moore was born at Williamsport, Pa.

If other members of the staff serving during the war are from Pennsylvania, this fact should be communicated to the Bureau in the usual manner.

A meeting of the Council of the American Society of Mammalogists was held on January 24 at the National Museum to arrange for the second annual meeting of the Society, to be held in New York City this spring.

The Assistant Chief, Mr. Henderson, left Washington on January 6 to attend the meetings of the Utah Wool Growers Association and the National Wool Growers Association at Salt Lake City, Utah, January 16-21, and the twenty-second annual convention of the American National Live Stock Association, at Spokane, Washington, January 27-29. Enroute he visited the Winter Elk Refuge at Jackson Hole, Wyoming, where he found the condition of the elk much improved over conditions early in December.

Mr. Joseph N. Colton resigned as typist in the Editorial Section on January 19, 1920, to accept a position in the Bureau of Plant Industry.

ECONOMIC INVESTIGATIONS

Two of our predatory animal hunters deserve special mention because of the high courage, endurance, and resourcefulness displayed by them and reported by Inspector Holman of Salt Lake City, Utah, as follows:

George O. Massey and Andrew L. Hamrick, of Vernal, Utah, went on to the Diamond Mountain to do some poison work and on December 14 found a Mexican almost frozen. They returned to Vernal with him on December 15, and after he had recovered from exhaustion and exposure sufficiently to talk they learned through an interpreter that two men had left a sawmill higher up on the mountain two days before to go for help, leaving a woman and child in the camp with very short rations. These two men volunteered to rescue the parties on the mountain if a four-horse team, sleigh, and driver were furnished them. Although almost frozen from their previous trip, they started back early the following morning with the thermometer about 40 degrees below zero. They found the woman and child in camp still alive, but the two men who had left camp several days before to go for assistance were found frozen to death, also a horse they had with them and a cat and dog that had followed them. We are certainly proud to have such courageous men on our force, and anyone who knows anything about that country can realize something of what these men endured and the risk they were taking.

Dr. A. K. Fisher left Washington, D. C., January 12, to attend the annual meeting of the Utah Wool Growers' Association, January 16-17, and the convention of the National Wool Growers, January 19-21, both at Salt Lake City, Utah, for the purpose of discussing the work of the Bureau as it affects the production and maintenance of live stock.

From Salt Lake City he will proceed to Spokane, Wash., accompanied by the Assistant Chief, Mr. Henderson, to represent the Bureau at the annual meeting of the American National Live Stock Association, January 27-29. Before returning to Washington he will visit other points in the field where important matters are pending and require special consideration.

Dr. Ned Dearborn lectured at Cornell University on January 14, on the subject of domesticating fur-bearing animals. He then went to points in Michigan, Wisconsin, and Minnesota to investigate methods in connection with the rearing of fur-bearing animals and domesticated rabbits in these States, returning by way of New York, where he attended a rabbit show at Madison Square Garden, January 20-24.

Mr. Remington Kellogg, who was among the representatives of the bureau detailed to the Sanitary Corps for special work in rat control with the American Expeditionary Forces in France, and who more recently was connected with the Department of Zoology of the University of California, returned to the Bureau on January 1, and is now engaged in studying the food habits of hawks and owls.

Mr. D. A. Gilchrist has recently been putting on a live campaign against pocket gophers in the vicinity of Phoenix and other points in southern Arizona. County commissioners, commercial clubs, several hundred ranchers, and representatives of the Extension Service of the State Agricultural College have joined in this fight to exterminate the pocket gophers which have been killing fruit trees, destroying other crops, and breaking irrigation ditch banks.

In making readjustments due to the resignation of Messrs. Jackson and U. S. Ebner, Mr. A. B. Plummer is being assigned to take charge of the rodent eradication work in the Wyoming-Nebraska district, with headquarters at Cheyenne, Wyo.; and Mr. R. Scott Zimmerman to have charge of the rodent work in the North Dakota-South Dakota district, with headquarters at Agricultural College, Fargo, N. Dak. Mr. Jackson is now in business at Eaton, Colo., in partnership with Mr. James Silver, also a former member of the bureau staff. Mr. Ebner has entered the employ of the Leo Shapiro Company, manufacturing chemists of Minneapolis, Minn.; among their leading products are various kinds of commercial rodent poisons.

Good progress is being made by Inspectors Bateman and Gillings in launching the campaign against predatory animals in North Dakota in cooperation with the State Agricultural College. Substantial contributions have already been made to the work by several boards of county commissioners, and prospects are good for the development of an important service in this State.

The progress report of Mr. C. R. Landon for the period July 1 to December 31 recently received shows a consistent growth in the cooperative work against predatory animals in Texas. This work is supported by State appropriation and by cooperative funds provided by counties and by live-stock associations. Mr. Landon states that the demands for cooperation have been greater during the past six months than ever before, proving that stockmen are growing to realize more and more the value of the work.

Successful rabbit drives have been conducted recently in Washington under the direction of Messrs. Theo. H. Scheffer and Leo. K. Couch. Photographs submitted show large numbers of jack rabbits which were killed in the drives. Moving-picture companies were present to film the drives.

Mr. E. F. Fribley, who has been connected with the Washington office but engaged in field work in the Eastern States, has been detailed to assist Mr. Gilchrist in Arizona, where he will report for duty early in February.

Some very interesting stereoscopic photographs of prairie dogs, prairie dog mounds, wild turkeys, and procedure followed by Mr. Benj. J. Melton of Oklahoma in poisoning prairie dogs and fumigating the burrows, taken by Mr. F. L. Goll, of the Bureau of Plant Industry, were recently exhibited at the office.

Mr. S. E. Piper spent the holiday season with his family at San Diego, Calif., and reports a restful vacation building fences, pruning grape vines, and making garden. He is now busily engaged in the predatory animal poisoning operations in Utah and Wyoming.

Marriages reported during the holiday season are those of Mr. C. R. Landon, Predatory Animal Inspector, Texas; and Mr. D. L. Jamison, connected with the rodent staff in Oregon.

BIOLOGICAL INVESTIGATIONS

The Survey is indebted to Prof. J. B. Flett, Senior Park Ranger, of Mount Rainier National Park, State of Washington, for the donation of a number of Park photographs of high excellence. One is of a Columbian black-tailed deer at short range taken in Van Trump Park, and another of a live cony taken at Indian Henrys. Mr. Flett has also sent in a quantity of valuable information regarding the habits and occurrence of birds and mammals within Mount Rainier Park. In view of the fact that he has resided there for several years, his opportunities for the observation of winter habits of mountain goats and other animals have been unexcelled.

A crusade for the perpetuation of the Okefinokee Swamp in Georgia has been undertaken by the Okefinokee Society, represented on our staff by Mr. Francis Harper. This swamp is unique among the natural resources of this country and is of extraordinary biological interest. Bird and mammal men should be particularly interested in its preservation, for within its borders the ivory-billed wood-pecker, wood duck, American egret, sandhill crane, and limpkin among birds, and the Florida water rat, panther, Florida otter, and Florida wolf among mammals, find one of their last strongholds.

Mr. Charles H. M. Barrett has joined forces with Mr. A. H. Howell, at St. Marks, Fla., for the purpose of assisting in the work of the Bureau, particularly in connection with the distribution of migratory birds in the State.

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[illegible] INTERSECTIONS

[illegible]

Miss Marion J. Pellew, of Washington, D. C., a member of the executive committee of the Audubon Society of the District of Columbia, is assisting in the compilation of data on bird migration and distribution.

The Division of Biological Investigations extends a hearty welcome to Dr. Alexander Wetmore, who is an acquisition to the scientific staff of this Division by transfer from the Economic Division. Dr. Wetmore's activities will deal with migratory birds.

Major E. A. Goldman left Washington on January 9, bound for Albuquerque, N. Mex., and Holbrook, Ariz. While in Arizona he will investigate the status of the elk on the Sitgreaves National Forest, in cooperation with the Forest Service and the State Game Warden's office, to the end that local elk regulations may be based on adequate information. It is expected that Major Goldman will be gone for some weeks.

It has long been recognized by the Biological Survey that grass-and seed-eating rodents modify the forage producing capacity of the grazing ranges in the Western States. Fortunately this is being increasingly appreciated by others. Work has been undertaken recently in Arizona to obtain additional information on life histories, fluctuations in abundance, and relations to cycles of climate and vegetation, and to forage conditions, of the kangaroo rat (Dipodomys spectabilis) and the prairie dog (Cynomys gunnisoni zuniensis). Experimental areas have been located on the Santa Rita Grazing Reserve, near Tucson, as well as at Williams, Seligman, and Coconino, Wash, near Grand Canyon. It is hoped by means of these investigations to secure valuable quantitative information. Cooperating in these studies are the Economic Division, represented by Mr. D. A. Gilchrist; the Forest Service, Mr. J. T. Jardine; the Carnegie Institution, Dr. Frederic E. Clements and Mr. Gorm Loftfield; and the University of Arizona Agricultural Experiment Station, Prof. Charles T. Vorhies. Dr. Walter P. Taylor is leader of the work.

Mr. George G. Cantwell has successfully completed his field work in eastern Washington, though he was handicapped to a considerable extent by the unusual severity of the winter season. Since January 1, he has been working in the vicinity of Puget Sound and the north coast of western Washington.

Miss Mary Estelle Hughes has recently been appointed on the force of this division to help in carding notes on the distribution of mammals.

MIGRATORY BIRD-TREATY AND LACEY ACTS

Mr. E. B. Whitehead has just been appointed United States Game Warden with headquarters at Tallahassee, Fla. He will confine his activities to northern Florida and certain portions of the adjoining States.

Mr. Gilbert R. Rossignol, 1133 E. 48th St., Savannah, Ga., has been added to the list of United States Game Wardens. Mr. Rossignol's territory includes practically the entire state of Georgia.

Mr. Lawyer returned to Washington during the first part of January after having been on an administrative trip throughout the United States since September 4.

Capt. W. F. Bancroft attended and addressed a meeting of the League of Ohio Sportsmen, at Columbus, on January 15 and reports a very enthusiastic meeting as well as a profitable one. Practically all sportsmen in attendance expressed themselves as being satisfied regarding the conditions of migratory waterfowl, and predict still better hunting as a result of the abolition of spring shooting.

Captain Bancroft also represented the Bureau at the annual meeting of the Virginia Game and Fish Protective Association held at Richmond, December 16. He made a short address at the evening meeting at which practically all the county game and fish wardens of the State were present, having been called together for a conference in connection with their duties by Col. F. N. Bilisoly, Commissioner of Game and Inland Fisheries. The meeting was very profitable and attended by many prominent sportsmen. A resolution was unanimously adopted recommending that the legislature amend the game laws of Virginia to make them conform to the Migratory-Bird Treaty Act and Regulations.

A conference of all United States Game Wardens having territories in the eastern and central-eastern United States was held at the Harrington Hotel, Washington, D. C., on January 19, 20, and 21. Addresses were made by the Chief of Bureau, Mr. Nelson, by Mr. R. W. Williams, Assistant Solicitor of the Department, and by Mr. Lawyer, who presided. The following wardens attended: Messrs. Albert Stadlmeir, Philip S. Farnham, Phineas K. Hilliard, Miles S. B. Knights, Thomas T. Bloxsom, Chas. P. S. Smith, William L. Birsch, Tudor H. Chisolm, Gilbert R. Rossignol, Capt. B. J. Pacetti, E. B. Whitehead, Samuel W. Linebaugh, Marquis A. Charlton, and B. G. Merrill. As a result of the conference, the wardens will return to their districts with many valuable ideas in connection with their work and with a better understanding of the definite manner in which the Migratory-Bird Treaty and Lacey Acts are being administered.

A conference of all United State Game Wardens, whose territories are in the Middle Western States, has been called to be held in St. Louis, Missouri, beginning Monday, February 9; and another conference to be participated in by the Wardens located in the Rocky Mountain and Pacific Coast States, will be held in Salt Lake City, Utah, beginning February 16; Mr. Lawyer will preside at both meetings.

St. Louis Conference postponed until February 16

In December, three violators plead guilty in the Federal court at Milwaukee, Wis., to the charge of shooting wild ducks between sundown and one half hour before sunrise and were fined $100 each. In the Federal court at Detroit, Mich., two defendents plead guilty to selling wild ducks; one w as fined $500 and the other $250. All of these cases were investigated and the arrests made by Warden C. F. Asmuth, of Milwaukee.

A large number of convictions have been obtained in cases involving violations of the Migratory-Bird Treaty Act. Other cases are constantly being reported by the wardens and deputies. Approximately 280 convictions have been secured up to the present time.

In December, Wardens Smith, Birsch, and Knights apprehended five violators of the Migratory-Bird Treaty Act in the vicinity of Currituck Sound, N. C. It is alleged that these violators have been fire-lighting ducks, geese, and swans for many years, but up to the present have enjoyed comparative safety in their illegal operations. -The wardens mentioned went into the section incognito and after making extensive investigations and securing all necessary evidence made summary arrests.

Warden Geo. E. Mushbach reports that in conversation with Mr. Albert Draper, a prominent farmer in the vicinity of Red Lodge, Mont., he was informed that at an altitude of about 5,300 feet, a large number of meadowlarks had failed to migrate and at that date (December 24) many of the birds were feeding on his ranch upon seeds found in the timothy stacks. Mr. Draper considered this very unusual, in view of his observations covering a period of about 30 years in that locality. He said that during recent cold weather, when the thermometer had registered far below zero, a number of the birds froze to death. Many, however, survived and still remain on the ranch. Mr. Mushbach reports extremely cold weather in Montana during December, the thermometer going as low as 52 degrees below zero near Butte.

Importation of quail from Mexico during the present season began on November 15. The three ports of entry, Eagle Pass, Laredo, and Brownsville, Tex., are open this year but birds are subject to a ten-days' quarantine at the time of entry. Up to December 31 there were admitted 4,900 quail, 600 more than during the entire season last year and nearly as many as in 1918. During the last week in December quail disease was detected in shipments from Laredo which had been forwarded to Cashtown, Lebanon, and York, Pa. As a consequence the entry of quail at Laredo has been suspended until February 1.

During the six months ended December 31, 1919, permits were issued for the entry of 1,015 foxes from Canada.

New or Changed Addresses - In the list of the United States Game Wardens given in THE SURVEY for January, the first initial of Captain Pacetti's name was given as "R"; His name should have been given as B. J. Pacetti. The local address of Warden Tonkin is Box 1531, Boise, Idaho, and that of Warden Ernest P. Walker is 1312 E. Filmore St., Phoenix, Arizona.

Three new members have been added to the staff of the Washington office since last month: Mr. Frank G. Grimes, who has been transferred from the Office of the Solicitor of this Department and who will be connected with work involving cases under the Migratory-Bird Treaty Act; Mrs. Margaret B. Leonard; and Mrs. Laura C. Miner, both typists.

MAMMAL AND BIRD RESERVATIONS

The Montana National Bison Range completed its tenth year in October, 37 Buffalo having been established there on October 17, 1909, and 3 more having been

added in November, 1910. These 40 animals have now increased to 296. In addition there are on the Range 125 elk (not including calv es of last year),33 antelope, and 13 mule deer, In this connection it is interesting to recall that Dr. W. T. Hornaday, formerly President of the American Bison Society, after making a personal examination in 1909, predicted that the Range "can support 1,500 bison, 500 antelopes, 100 deer, and 100 elk, all of which in good time will, we trust, be seen there." At the end of the first decade there were actually on the reservation 20 per cent of the buffalo, 125 per cent of the elk, 13 per cent of the deer, and 7 per cent of the antelope mentioned as the ideal capacity of the Range.

Dr. George W. Field, who, up to the time of his resignation in December, had been in charge of the administration of the National Mammal and Bird Reservations since December, 1916, instead of September 1916, as stated last month, has postponed his departure for Brazil until February 1, He expects to sail for Para to conduct investigations in the fisheries for the Brazilian Government.

For trespassing on the Winter Elk Refuge and for killing an elk on November 28, the offender has paid a penalty of $75.00.

Recent newspaper accounts of the starvation of elk in the Jackson Hole region, based on early reports, have been misleading for the reason that prompt action taken by the Department has resulted in saving the vast herds of elk which come regularly to the Winter Elk Refuge. The Bureau, under permission of the Secretary of Agriculture, has transferred funds from other appropriations and purchased 573 tons of hay additional, which, with that already on hand and with that in the possession of the State game authorities, makes about 2,000 tons available. This, it is confidently expected, will carry the animals through the winter without loss excepting to a few scattering herds in places in the hills too remote to get feed to them.

Bi-161
Jan.'20

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY
Washington, D.C.

E. W. Nelson, Chief of Bureau.

LIST OF PUBLICATIONS OF THE BUREAU OF BIOLOGICAL SURVEY AVAILABLE FOR GENERAL DISTRIBUTION.

NOTE.--Requests for publications should be addressed to the Chief, Division of Publications, U. S. Department of Agriculture, Washington, D.C.

When the limited supply of free publications is exhausted, applicants are referred to the Superintendent of Documents, Government Printing Office, Washington, D.C., who has the publications for sale at a nominal price.

Applicants are requested to ask for ONLY ONE COPY of the publications in which they are interested, and to mention the series, number, and title as given below.

REPORT OF CHIEF OF BUREAU.

Report of Chief of Bureau of Biological Survey for 1918 and 1919.

BIOLOGICAL SURVEY BULLETINS.

41. Chronology and Index of the More Important Events in American Game Protection, 1776-1911.
42. Report of an Expedition to Laysan Island in 1911.

DEPARTMENT BULLETINS--Biological Survey Contributions.

171. Food of the Robins and Bluebirds of the United States.
185. Bird Migration.
205. Eleven Important Wild-Duck Foods.
280. Food Habits of the Thrushes of the United States.
465. Propagation of Wild-Duck Foods.
619. Food Habits of the Swallows.
621. The Crow and its Relation to Man.
672. The Duck Sickness in Utah.
715. Attracting Birds to Public and Semipublic Reservations.
720. Food Habits of the Mallard Ducks of the United States.
793. Lead Poisoning in Waterfowl.
794. Waterfowl and Their Food Plants in the Sandhill Region of Nebraska.

FARMERS' BULLETINS--Biological Survey Contributions.

330. Deer Farming in the United States.
493. The English Sparrow as a Pest.
496. Raising Belgian Hares and Other Rabbits.
497. Some Common Game, Aquatic, and Rapacious Birds in Relation to Man.
506. Food of Some Well-Known Birds of Forest, Farm, and Garden.
525. Raising Guinea Pigs.
583. The Common Mole of Eastern United States.
587. Economic Value of North American Skunks.
609. Bird Houses and How to Build Them.

621. How to Attract Birds in Northeastern United States.
630. Some Common Birds Useful to the Farmer.
670. Field Mice as Farm and Orchard Pests.
702. Cottontail Rabbits in Relation to Trees and Farm Crops.
755. Birds of Southeastern United States in Relation to Agriculture.
760. How to Attract Birds in Northwestern United States.
770. Canaries: Their Care and Management.
795. The Domesticated Silver Fox.
832. Trapping Moles and Utilizing Their Skins.
844. How to Attract Birds in the Middle Atlantic States.
869. The Muskrat as a Fur Bearer: With Notes on its Use as Food.
896. House Rats and Mice.
912. How to Attract Birds in the East Central States.
932. Rodent Pests of the Farm.
1077. Game Laws for 1919.
1079. Laws Relating to Fur-Bearing Animals, 1919.

SEPARATE REPRINTS FROM YEARBOOKS--Biological Survey Contributions.

571. Crawfish as Crop Destroyers.
642. Our Shorebirds and Their Future.
693. Fur Farming as a Side Line.
723. The Great Plains Waterfowl Breeding Grounds and Their Protection.
724. Cooperative Campaigns for the Control of Ground Squirrels, Prairie-Dogs, and Jack Rabbits.
725. The House Rat: The Most Destructive Animal in the World.
784. Rabbit Growing to Supplement the Meat Supply.
785. Federal Protection of Migratory Birds.

NOTE.--Requests for the following documents and announcements should be addressed to the Chief, Bureau of Biological Survey, U. S. Department of Agriculture, Washington, D.C.

DEPARTMENT AND BUREAU CIRCULARS.

B.S.Circ. 17. Bird Day in the Schools.
B.S.Circ. 61. Hawks and Owls from the Standpoint of the Farmer.
B.S.Doc. 102. Directions for Preparing Specimens of Large Animals in the Field.
Dept.Circ. 59. Field Studies of Mammalian Life-Histories.
Dept.Circ. 63. Directory of Officials and Organizations Concerned with the Protection of Birds and Game, 1919.

BIOLOGICAL SURVEY SERVICE AND REGULATORY ANNOUNCEMENTS.

2. Regulations for the Aleutian Islands Reservation, Alaska.
6. Regulations for the Yukon Delta Reservation in Alaska.
13. Regulations for the Issue of Permits for Quail Importation into the United States from Northern Mexico.
21. Regulations Governing the Collecting of Birds and Their Nests and Eggs on Federal Bird Reservations for Scientific and Propagating Purposes.
28. Regulations for the Protection of Game in Certain Localities in Alaska.
30. Migratory Bird, Treaty, Act, and Regulations.
31. Importation of Quail from Northeastern Mexico.

FEB. 1920.

FIELD DIRECTORY OF THE BIOLOGICAL SURVEY
STATES WEST OF THE MISSISSIPPI RIVER

ARIZONA

ECONOMIC INVESTIGATIONS

Predatory Animal Control

M. E. Musgrave, Predatory Animal Inspector
L. H. Davenport, Clerk
Both, Box 765, Phoenix

Rodent Control

D. A. Gilchrist, Biological Assistant
A. W. Moore, Biological Assistant
Frank G. Lewis, Biological Assistant
E. F. Fribley, Biological Assistant
L. H. Davenport, Clerk
All, Box 765, Phoenix

BIOLOGICAL INVESTIGATIONS

E. A. Goldman, Assistant Biologist, Washington, D. C. (Biological Survey)
Walter P. Taylor, Assistant Biologist, Washington, D. C. (Ecology of rodents)

BIRD TREATY AND LACEY ACTS

Ernest P. Walker, Warden, 1312 E. Fillmore St., Phoenix
Geo. W. Pearce, Deputy Warden, Hayden
Charles J. Asche, Deputy Warden, 2110 W. Monroe St., Phoenix

ARKANSAS

BIRD TREATY AND LACEY ACTS

Ernest V. Visart, Warden, 2705 State St., Little Rock
Geo. B. Rison, Jr., Deputy Warden, 1017 Spruce St., Little Rock
Martin Sharp, Deputy Warden, Little Rock

NATIONAL RESERVATIONS

G. M. Riddick, Warden, Big Lake
L. L. Bryan, Assistant Warden, Big Lake
Both, Hornersville, Mo.

CALIFORNIA

ECONOMIC INVESTIGATIONS

Predatory Animal Control (Calif.-Nev.)

E. R. Sans, Biological Assistant
Thos W. Peryam, Predatory Animal Inspector
Both, Gazette Bldg., Reno, Nev.

Rodent Control

F. E. Garlough, Biological Assistant
Edward Tallman, Jr., Field Assistant
Both, 2039 Shattuck Ave., Berkeley

BIRD TREATY AND LACEY ACTS

Earl P. Barnes, Deputy Warden, 925 "O" St., Eureka
Ernst E. Behr, Deputy Warden, Willows
Harry D. Becker, Deputy Warden, 1228 Nipomo St., San Luis Obispo
[illegible] W. Bolt, Deputy Warden, Gridley
James L. Bundock, Deputy Warden, 1734 -84th Ave., Oakland

BIRD TREATY AND LACEY ACTS

[illegible]
Stonewall I. Carpenter, Deputy Warden Maxwell
G. W. Courtright, Deputy Warden Canby
S. L. N. Ellis, Deputy Warden, 159 Park Ave., Fresno
G. I. Fleckenstein, Deputy Warden, Folsom
Joseph S. Hunter, Deputy Warden, 425 New Call Bldg., San Francisco
Roy E. Ludlum, Deputy Warden Los Molinas
W. C. Malone, Deputy Warden, San Bernardino
George Neale, Deputy Warden, 2100 "L" St., Sacramento
J. E. Newsome, Deputy Warden, Newman
E. H. Ober, Deputy Warden, Big Pine
John O'Connell, Deputy Warden P. O. Box 642, Stockton
R. C. O'Conner, Deputy Warden Grass Valley

CALIFORNIA - Cont'd

BIRD TREATY AND LACEY ACTS Cont'd

Harry L. Pritchard, Deputy Warden,
426 Union League Bldg., Los Angeles
Edward D. Ricketts, Deputy Warden
Live Oak
Joseph H. Sanders, Deputy Warden,
Truckee
Chester A. Scroggs, Deputy Warden,
Loomis
Robert L. Sinkey, Deputy Warden,
1037 North St., Woodland
Edward W. Smalley, Deputy Warden,
P. O. Box 572, Ranford
Webb Toms, Deputy Warden,
1325 "I" St., San Diego

BIRD TREATY AND LACEY ACTS Cont'd

James S. White, Deputy Warden,
Redding
Milton S. Clark, Deputy Warden
3643 -16th St., San Francisco
Wm. H. Armstrong, Deputy Warden,
Vallejo

Importation of Birds and Mammals

Joseph Grinnell, Inspector,
H. C. Bryant, Inspector,
Tracy I. Storer, Inspector,
All, Berkeley.

COLORADO

ECONOMIC INVESTIGATIONS

Predatory Animal Control

L. B. Crawford, Pred. Animal Inspector
Harry M. Reid, Pred. Animal Inspector
J. B. Braden, Clerk,
All, 212 Custom House

Rodent Control (Colo.-Kans.)

Joseph Keyes, Biological Assistant,
212 Custom House, Denver
Walter D. Perry, Field Assistant,
Extension Division, Manhattan, Kans.
J. B. Braden, Clerk,
212 Custom House, Denver

BIRD TREATY AND LACEY ACTS

A. M. Antwine, Deputy Warden,
State Capitol, Denver

IDAHO

ECONOMIC INVESTIGATIONS

Predatory Animal Control
(Idaho-Oreg.-Wash.)

Stanley G. Jewett, Pred. Animal Inspector
C. P. Watson, Pred. Animal Inspector
E.S. Hoek, Clerk
All, Pendleton, Oreg.

Rodent Control

W. E. Crouch, Biological Assistant
Joseph Thometz, Field Assistant
Both, Boise

BIRD TREATY AND LACEY ACTS

George Tonkin, Warden,
Box 1531, Boise
Arthur R. Johnson, Deputy Warden,
228 Idaho Trust Bldg., Lewiston

National Reservations

Theo. Teeters, Warden, Minidoka,
American Falls
G. L. Hoffman, Warden, Minidoka
U. S. Reclamation Service
Minidoka

IOWA

BIRD TREATY AND LACEY ACTS

William E. Albert, Deputy Warden,
Lansing
Chas. S. Hobson, Deputy Warden,
300 Lincoln Ave., Clarinda

BIRD TREATY AND LACEY ACTS* Cont'd

Robt. T. St. John, Deputy Warden,
Riceville
James E. Waterhouse, Deputy Warden,
Charter Oak

KANSAS

ECONOMIC INVESTIGATIONS

Rodent Control (Kans.-Colo.)
Joseph Keyes, Biological Assistant,
212 Custom House, Denver, Colo.
Walter D. Perry, Field Assistant,
Extension Division, Manhattan, Kans.
J. B. Braden, Clerk
212 Custom House, Denver, Colo.

BIRD TREATY AND LACEY ACTS

Michael Concannon, Deputy Warden
Lansing.
Alva Clapp, Deputy Warden.
Pratt.

LOUISIANA

BIRD TREATY AND LACEY ACTS

Elliot D. Coleman, Deputy Warden,
Highland.
Wm. S. Holmes, Deputy Warden,
Dept. of Conservation, New Orleans
Polignac D. LaBleu, Deputy Warden,
Lake Charles.

BIRD TREATY AND LACEY ACTS

Samuel F. Luckett, Deputy Warden
Lee St., Alexandria.
Emile R. Sanac, Deputy Warden.
Dept. of Conservation, New Orleans
Joseph W. Trahan, Deputy Warden,
Abbeville.

MINNESOTA

Biological Investigations
Harry C. Oberholser Assistant Biologist,
Washington, D. C. (Migratory Waterfowl)

BIRD TREATY AND LACEY ACTS

B. J. Shaver, Warden.
State Game and Fish Commissioner,
St. Paul.
Sherman C. Bailey, Deputy Warden,
606 America Ave., Bemidji
Oscar S. Briggs, Deputy Warden.
Ortonville.
Chas. D. Gibb, Deputy Warden,
Wilder

TREATY AND LACEY ACTS-CONT.

Paul S. Goodel, Deputy Warden,
Herman.
Peter J. Karpen, Deputy Warden,
French River.
Ernest R. Olsen, Deputy Warden,
715 - 6th St., Willmar
Clare E. Saunders, Deputy Warden
Roseau

MISSOURI

BIRD TREATY AND LACEY ACTS

Harry Barmeier, Game Warden,
2847 Victor St., St. Louis
Jesse A. Hiner, Deputy Warden,
Rushville
Wm. W. Schoch, Deputy Warden,
2630 Missouri Ave., St. Louis

BIRD TREATY AND LACEY ACTS-CONT.

Weber W. Minges, Deputy Warden,
2714 Louisiana Ave., St. Louis
John L. Quigley, Deputy Warden,
R. R. #1, Shelbina

Feb. 1920.

MONTANA

ECONOMIC INVESTIGATIONS

Predatory Animal Control (Mont.- N. Dak.)

R. E. Bateman, Predatory Animal Inspector
J. F. Gillings, Predatory Animal Inspector
Susie Stephens, Clerk
All, Billings

Rodent Control
Geo. A. Roosevelt, Biological Assistant, Bozeman

BIOLOGICAL INVESTIGATIONS

E. A. Preble, Assistant Biologist, Washington, D. C. (Biological Survey)

BIRD TREATY AND LACEY ACTS

George E. Mushbach, Game Warden
Box 438, Billings.

NATIONAL RESERVATIONS

Andrew R. Hodges, Warden, Nat'l. Bison Range, Moiese
F. W. Triska, Assistant Warden, National Bison Range, Moiese

NEBRASKA

BIOLOGICAL INVESTIGATIONS

Harry C. Oberholser, Assistant Biologist, Washington, D. C. (Migratory Waterfowl.)

BIRD TREATY AND LACEY ACTS

John Q. Holmes, Game Warden, Orleans
Wm. H. Francke, Deputy Warden, Valentine
Milton C. Peters, Deputy Warden, 206 S. 32nd Ave., Omaha
Jacob Peters, Deputy Warden Verdel

BIRD TREATY AND LACEY ACTS-CONT'D

George G. Koster, Deputy Warden Lincoln

Fred E. Mockett, Deputy Warden Pine Camp
Edmund W. Varner, Deputy Warden Adams

NATIONAL RESERVATIONS

F. M. Dille, Warden, Niobrara Valentine

NEVADA

ECONOMIC INVESTIGATIONS

Predatory Animal Control (Nev.-Calif.)

E. R. Sans, Biological Assistant
Thos. W. Peryam, Predatory Animal Inspector
Both, Gazette Bldg., Reno.

Rodent Control

E. R. Sans, Biological Assistant, Gazette Bldg., Reno.

BIRD TREATY AND LACEY ACTS

John A. Kirwin, Deputy Warden, Winnemucca
Phillip H. Wolf, Deputy Warden Lovelock
George I. James, Deputy Warden, 212 N. Virginia St., Reno.

NATIONAL RESERVATIONS

James Sutcliffe, Warden, Anaho Island, Pyramid

Feb. 1920.

NEW MEXICO

ECONOMIC INVESTIGATIONS

Predatory Animal Control

S. E. Piper, Assistant Biologist
J. Stokley Ligon, Predatory Animal Inspector
E. F. Pope, Predatory Animal Inspector
L. B. Thompson, Clerk
All, Box 131, Albuquerque

Rodent Control

S. E. Piper, Assistant Biologist
Duane Stonier, Biological Assistant
H. E. Williams, Biological Assistant
Chas. F. Bliss, Biological Assistant
L. B. Thompson, Clerk
All, Box 131, Albuquerque.

BIRD TREATY AND LACEY ACTS

Joseph Bell, Deputy Warden, Belen
Millet S. Clancy, Deputy Warden, Jamez Springs
Bernard F. Leonard, Deputy Warden 107 W. 12th St., Roswell
Theodore Rouault, Jr., Deputy Ward Sahta Fe
Lawrence A. Tamme, Deputy Warden, 1107 - 6th St., East Las Vegas

NORTH DAKOTA

ECONOMIC INVESTIGATIONS

Predatory Animal Control (N.Dak.-Mont.)

R. E. Bateman, Predatory Animal Inspector
J. F. Gillings, Predatory Animal Inspector
Susie Stephens, Clerk
All, Billings, Mont.

Rodent Control (N. Dak.-S. Dak.)

R. Scott Zimmerman, Biological Assistant, Agricultural College

BIOLOGICAL INVESTIGATIONS

Vernon Bailey, Chief Field Naturalist Washington, D. C. (Biological Surveys)
Harry C. Oberholser, Assistant Biologist, Washington, D. C. (Migratory Waterfowl)

BIRD TREATY AND LACEY ACTS

James J. Flanagan, Deputy Warden, Towner
George M. Hogue, Deputy Warden, Steele
B. J. Monaghan, Deputy Warden Upham
Peter Scott, Deputy Warden? Bottineau

NATIONAL RESERVATIONS

Wm. S. Berry, Warden, Sullys Hill Game Preserve, Fort Totten

OKLAHOMA

ECONOMIC INVESTIGATIONS

Rodent Control

Benj. J. Melton, Biological Assistant, Lawton

BIRD TREATY AND LACEY ACTS

Walter B. Martin, Deputy Warden, Pawhuska

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OREGON

ECONOMIC INVESTIGATIONS

Predatory Animal Control (Oreg.-Wash.-Ida.)

Stanley G. Jewett, Predatory Animal Inspector
C. P. Watson, Predatory Animal Inspector
E. S. Hoek, Clerk
All, Pendleton

Rodent Control

Ira N. Gabrielson, Assistant Biologist
Everett E. Horn, Field Assistant
Dwight L. Jamison, Field Assistant
All, 220 P. O. Bldg., Portland

BIOLOGICAL INVESTIGATIONS

Vernon Bailey, Chief Field Naturalist, Washington, D. C. (Biological Survey)
George G. Cantwell, Field Assistant, Puyallup, Wash. (Biological Survey.)

BIRD TREATY AND LACEY ACTS

Eugene S. Cattron, Warden, 220 Post Office Bldg., Portland.
Edward H. Clark, Deputy Warden 1598 E. 11th St., N., Portland
James M. Thomas, Deputy Warden North Bend

NATIONAL RESERVATIONS

J. J. Furber, Warden Klamath Lake, Klamath Falls
Geo. M. Benson, Warden Malheur Lake, Narrows
Wm. O. Whitsett, Warden, Cold Spring, Hermiston

SOUTH DAKOTA

ECONOMIC INVESTIGATIONS

Predatory Animal Control (S. Dak.-Wyo.)

Chas. J. Bayer, Predatory Animal Inspector, Lander

Rodent Control (S. Dak.-No. Dak.)

R. Scott Zimmerman, Biological Assistant, Agricultural College, N. D.

BIRD TREATY AND LACEY ACTS

L. C. Hawley, Deputy Warden, Sioux Falls
Louis P. Johnson, Deputy Warden, Armour
Frank Artune, Deputy Warden, Chamberlain

NATIONAL RESERVATIONS

Geo. M. Wilson, Warden, Belle Fourche, Belle Fourche.
A. P. Chambers, Warden, Wind Cave Game Preserve, Hot Springs.

Feb. 1920.

TEXAS

ECONOMIC INVESTIGATIONS
Predatory Animal Control

C. R. Landon, Predatory Animal Inspector
Cecil D. Smith, Clerk
Both, 206 Central Natl. Bank, San Angelo

BIRD TREATY AND LACEY ACTS

George C. Shupee, Game Warden,
Box 964, San Antonio
Hugh Chilton, Deputy Warden,
Marlin
Walto L. Denalsano, Deputy Warden,
Eagle Pass
Lloyd Doolittle, Deputy Warden,
3612 Lindenwood St., Dallas
Charles D. Erwin, Deputy Warden,
439 Westmoreland Ave., Houston

BIRD TREATY AND LACEY ACTS-CONT'D

Henry C. Hillebrandt, Deputy Warden,
High Island
George P. Hunton, Deputy Warden,
Temple
Robert E. Lawson, Deputy Warden,
Lorena
Walter C. Lindemann, Deputy Warden
Comfort
C. A. McIntyre, Deputy Warden,
Kemp
Wm. E. Shuttles, Deputy Warden,
1521 Commerce St., Dallas
Roy B. Wales, Deputy Warden,
3705½ M. St., Galveston
W. F. Wilson, Deputy Warden,
Stephenville

UTAH

ECONOMIC INVESTIGATIONS
Predatory Animal Control

Geo. E. Holman, Predatory Animal Inspector
Ed. Rasmussen, Predatory Animal Inspector
Otis McCormick, Clerk
All, 204 Atlas Bldg., Salt Lake City

Rodent Control

B. B. Richards, Biological Assistant
Otis McCormick, Clerk
Both, 204 Atlas Bldg., Salt Lake City

BIRD TREATY AND LACEY ACTS

Irving C. Emmett, Game Warden
2651 Van Buren Ave., Odgen
Theodore M. Secholzer, Deputy Warden
606 N. First St., E., Logan.
Joseph C. Smith, Deputy Warden,
R.D. #4, Murray City

NATIONAL RESERVATIONS

James L. Lytel, Warden,
Strawberry Valley, Provo

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WASHINGTON

ECONOMIC INVESTIGATIONS

Predatory Animal Control (Wash.-Oreg.-Ida.)

Stanley G. Jewett, Predatory Animal Inspector
P. Watson, Predatory Animal Inspector
S. Hoek, Clerk
All, Pendleton, Oreg.

Rodent Control

Theo. H. Scheffer, Assistant Biologist
Leo. K. Couch, Biological Assistant
Both, Puyallup

BIOLOGICAL INVESTIGATIONS

Walter P. Taylor, Assistant Biologist
Washington, D. C. (Biological Survey)
George G. Cantwell, Field Assistant
Puyallup (Biological Survey.)

BIRD TREATY AND LACEY ACTS

Webster H. Ransom, Game Warden,
708 W. 20th Ave., Spokane
John M. Aitken, Deputy Warden
Bellingham
W. E. Clancy, Deputy Warde
Chinook
L. H. Darwin, Deputy Warden,
Seattle
Ira D. Light, Deputy Warden
Steilacoom
Frank Bryant, Deputy Warden
Yakima
Albert Van Ausdle, Deputy Warder
College Place

NATIONAL RESERVATIONS

Neil Gelant, Warden,
Dungeness Spit,
New Dungeness.

WYOMING

ECONOMIC INVESTIGATIONS

Predatory Animal Control (Wyo.-S. Dak.)

Chas. J. Bayer, Predatory Animal Inspector,
Lander

Rodent Control

B. Plummer, Biological Assistant,
530 Citizens Bank, Cheyenne.

NATIONAL RESERVATIONS

D. C. Nowlin, Warden,
Winter Elk Refuge, Jackson
Bryan Nowlin, Assistant Warden,
Winter Elk Refuge, Jackson.

THE SURVEY

Monthly News Bulletin of the Bureau of Biological Survey
United States Department of Agriculture

Vol. 1 Washington, D. C., March, 1920 No. 3

THE SURVEY is issued for office and field men of the Biological Survey under authorization of the Chief of Bureau as a medium for furnishing information regarding the work of the Bureau, movements of the staff, changes in assignments, and news and personal items of importance, with a view to increasing the interest of the personnel in the work of the Bureau as a whole and in each one's individual work as related to it. Items which members of the force desire to have appear in future issues should be handed in through the appropriate member of the Committee on THE SURVEY, as follows; W. C. Henderson, representing the Bureau as a whole; W. B. Bell, Economic Investigations; W. Roy Dillon, Migratory-Bird Treaty and Lacey Acts; Walter P. Taylor, Biological Investigations; T. S. Palmer (whose name was through oversight omitted from the list in the February issue), Game Preservation; Wm. H. Cheesman, Editor.

GENERAL NOTES

The special feature of this month's issue is a continuation of the field directory of the Bureau, arranged by State, and covering the area east of the Mississippi River.

The regular evening meeting of the scientific staff for the month of February was omitted on account of the prevalence of influenza.

At the meeting of the Biological Society of Washington, February 7, Dr. T. S. Palmer told of efforts to feed the quail resident in the District of Columbia. In this work the Audubon Society of the District and interested individuals cooperate with the Metropolitan Police. A partial enumeration of the quail shows an increase in numbers during the past two years.

The American Ornithologists' Union Committee on Nomenclature met in Washington February 11-12, to inaugurate the preparation of a much-needed new Check List of North American Birds. This committee is composed of Dr. Witmer Stone, of Philadelphia, Chairman; Dr. Jonathan Dwight, of New York; Dr. C. W. Richmond, of the United States National Museum; and Dr. T. S. Palmer and Dr. Harry C. Oberholser, of the Biological Survey. It was decided to cooperate with a similar committee of the British Ornithologists' Union in the preparation of a Systema Avium, to include all the birds of the world divided into several parts, one for each of the great zoogeographical regions; the two volumes for the Western Hemisphere to be prepared by the American Ornithologists' Union, and the others by the British Ornithologists' Union, but with supervision of all by each committee. This will result in uniform names throughout the series.

A substantial beginning was made in the preparation of the volume for the Nearctic Region, which will be also the A. O. U. Check List of North American Birds. It is planned to push the work as rapidly as possible, but owing to the great activity in ornithological circles since the last list was prepared, the task is one of considerable magnitude.

Mr. Henderson, Assistant Chief, returned to Washington, February 11, after more than a month's absence, during which he attended meetings of associations of wool and stock growers at Salt Lake City, Utah, and Spokane, Wash., as noted under "Economic Investigations." He conferred with Forest Service officials at Ogden, Utah, and at Missoula and other points in Montana; and with National Park Service officials at Gardner, Mont., where also he saw elk being fed. On his way west he stopped at the Winter Elk Refuge at Jackson Hole, Wyo., and on the return trip visited the Niobrara Big Game Preserve, near Valentine, Nebr.

Miss Roberta M. Taylor, of West Virginia, has been appointed typist in the Editorial Section, effective January 26.

Mr. Julian E. D. Milton, of Tennessee, was appointed assistant in charge of files, by transfer from the Civil Service Commission, effective February 4.

BIOLOGICAL INVESTIGATIONS

Mr. George G. Cantwell writes from Bellingham, Wash., reporting progress in field work in Whatcom County. He also transmits a photograph of mountain goats, taken by Forest Ranger J. C. Burch, of Glacier, Wash., in the Hozomeen Mountains, near the international boundary. Mr. Burch has kindly donated the photograph to the Biological Survey.

Mr. William L. Finley, of Portland, Oreg., has recently forwarded to the National Park Service and to this Bureau, a series of approximately 50 photographs of birds and 20 of mammals, taken in 1919 and for the most part in Mount Rainier National Park in a biological survey of the Park in which the Bureau is cooperating. The lot contains several of exceptional interest. Particularly good are those of the band-tailed pigeon, white-tailed ptarmigan, Clark nutcracker, little chipmunk, pika, and Cascade hoary marmot.

Pending the appointment of an official to take charge of the mammal collection of the Biological Survey, Dr. Hartley H. T. Jackson is exercising general supervision over it. Dr. H. C. Oberholser is in charge of the bird collection. Many of the employees of the Biological Survey who are unfamiliar with the work of the Division of Biological Investigations conducted in the Bureau's offices in the New National Museum may not realize the extent of the work done there. The Bureau's mammal collection deposited in the Museum contains 128,000 specimens, which require 425 large storage cases for their safe keeping. The bird collection contains some 55,000 specimens and requires 104 large cases for their storage. Normally five persons are constantly at work in the Survey offices in the Museum, but at times this number is doubled and the offices become literally a bee-hive of activity. It is impossible to estimate accurately the cash value of the Biological Survey collections, but a conservative estimate would place it in the millions. Many of the specimens could never be replaced. The collection is the foundation over which much of the work of the Bureau has been built. It is utilized not only by biologists of our staff, but by workers from all parts of America and from many foreign countries. It will remain a useful monument to the activities of the Biological Survey.

The Biological Survey is planning to send a field party to northern Alberta, Canada, this year, for the particular purpose of studying migratory waterfowl and investigating their breeding grounds about Lake Athabaska. The trip is undertaken with the cooperative support of Dr. John C. Phillips, of Boston, Mass. The party will consist of Messrs. Francis Harper, Hamilton M. Laing, and an assistant not yet selected.

Major E. A. Goldman returned to Washington, February 5, from Arizona, where he went in January to investigate the elk herd and conditions affecting the animals on the Sitgreaves National Forest. The work was done in cooperation with the Forest Service. Messrs. Ward Shepard and Paul H. Roberts, of the District Forester's office at Albuquerque, N. Mex., taking part. A recent heavy fall of snow enabled the party to track the elk readily, and afforded ideal conditions under which to estimate the number of animals and to trace the winter activities of the herd. Deeper snow on the higher parts of the Forest had forced the elk down to the lower levels, and the winter range was located mainly in the pinyon and juniper belts. Reports of the party indicate that the elk are thriving in this area where they were planted in 1913. Many data were gathered bearing upon the policy to be adopted in the future management of the herd.

Mr. Charles H. M. Barrett, our genial taxidermist, returned to Washington on February 20, having completed nearly two months of field work on the northwest coast of Florida. Work was done principally in the vicinity of St. Marks and St. Andrews Bay.

Prof. M. H. Spaulding, of the State Agricultural College, Bozeman, Mont., has been a visitor at our offices several times during the month. Professor Spaulding, with the cooperation of Messrs. E. A. Preble, Vernon Bailey, and Hartley H. T. Jackson, is identifying his collection of Montana mammals. During his sabbatical year, Professor Spaulding is conducting research work at the Carnegie Laboratory of Embryology, Johns Hopkins Medical School, Baltimore, Md.

Alvin H. Bomgardner was appointed messenger on February 9, and will be assigned, particularly to the section handling migratory-bird investigations.

ECONOMIC INVESTIGATIONS

Mr. S. E. Piper has been occupied during the past month in connection with trapping and poisoning operations in Utah, Wyoming, and Colorado. Work already organized indicates that important advances have been made during the year in methods of poisoning coyotes and in plans for the organization of effective campaigns against these animals.

As stated in the last issue of THE SURVEY Assistant Chief Henderson and Dr. Fisher attended the annual convention of the Utah Wool Growers' Association at Salt Lake City and the American National Live Stock Association meeting at Spokane, Wash. At the Salt Lake City meeting Dr. Fisher briefly outlined the predatory animal work of the Survey during the current year. At Spokane Assistant Chief Henderson made some pertinent remarks on the rodent and predatory animal work conducted by the Bureau. Live-stock owners attending these meetings were enthusiastic in their praise of the work which the Bureau has conducted. Many reported that the losses to their flocks and herds were merely nominal, where a few years ago they amounted to as much as 25 per cent of the lambs or calves. Strong resolutions were adopted indorsing the work of the Biological Survey and recommending the appropriation of additional funds for extending the work.

Dr. Karl B. Hanson, in charge of the fur farm at Keeseville, N. Y., spent about ten days at the Washington office in conferences relative to investigations in progress. He has been studying problems connected with the rearing of fur-bearing animals under domestication, and familiarizing himself with procedure followed by other department workers in related inquiries in animal production.

A national conference on the fur industry and wild life protection in Canada was held at the Windsor Hotel, Montreal, February 19-20 under the auspices of the

Commission of Conservation and the Advisory Board on Wild Life Protection. The Biological Survey was represented by Dr. Ned Dearborn, who spoke on the subject of rearing fur bearers other than silver foxes.

The program comprised papers and addresses followed by discussions on the following subjects: The Fur Industry Convention and what it may accomplish; our fur-bearing animals, their economic significance and future; problems of fur protection, including the care and management of foxes, nutritional problems, parasites, diseases, fox raising as a commercial proposition, raising and feeding foxes, fur farming in Quebec, registration of silver foxes; rearing fur bearers other than silver foxes; fur statistics relating especially to the annual fur output of the Province of Quebec; marketing furs, including improvements of methods, trade names for furs, and a Canadian auction fur sale; game laws and administration, including sale of game, game protective associations, and a discussion of game laws from the standpoint of the legislator, the trader, the trapper, the fur dealer, and the fur manufacturer.

The conference was well attended, a number of Americans being present. The great importance of fur animals was brought out and dwelt upon at length. The opinion prevailed that the fur resources of Canada are too important to be neglected and that the value of fur to the Dominion is greater than that of game.

Dr. W. B. Bell visited Cornell University February 12, to take part in their Farmers' Week program, and discussed the subject, "Some Game and Nongame Birds in Relation to Agriculture."

Mr. E. R. Kalmbach during the latter part of February investigated the poisoning campaigns conducted against predacious birds and mammals in Pennsylvania with reference to their effect upon birds and other animals.

Mr. Remington Kellogg was engaged during the month in studying the relation of the wintering ducks to trout in Michigan.

In Oregon, ground squirrels were reported as coming out as early as February 1, because of the mild weather during January and February. In certain sections of Nevada they were making their appearance by the 10th.

Several of the field men have been suffering from attacks of influenza, but reports indicate that all have recovered or are making good progress in their return to condition to resume their active duties.

The Bureau is glad to welcome to its predatory animal work Mr. Luther J. Goldman, who has returned after a period of almost one year spent in Alaska. He has reported at Pendleton, Oreg., and on March 1, will assume active charge of the predatory animal work in Idaho, his former district, with headquarters at Boise.

Mr. Frank J. Hale was appointed on February 1, predatory animal inspector and assigned to assist Mr. C. J. Bayer in carrying on the predatory animal operations in Wyoming.

MAMMAL AND BIRD RESERVATIONS

Mr. Vernon Bailey in September examined the proposed Roosevelt Bird and Game Refuge around Roosevelt Mountain, in the Black Hills of South Dakota and made a full report on its general features and the game and wild life to be found there. Of the larger game it now contains elk, mule deer, white-tailed deer, beaver, and occasionally bear, while the cliffs along Spearfish Canyon afford ideal range for

mountain sheep. Sharp-tailed and ruffed grouse are the principal game birds there now, but parts are well adapted to the wild turkey, if introduced. Native song birds, including several thrushes, Townsend solitaire, mountain tanager, water ouzel, and many others of special interest are abundant.

Dr. George W. Field, who will shortly take up work in connection with fisheries for the Brazilian Government, has been able prior to his departure for South America, to devote some attention to projects for protecting the bird reservation at Malheur Lake, Oreg., and for the establishment of a reservation in southern Oregon and northern Nevada for the protection of sage grouse and antelope. On his trip of inspection of game refuges over the west in September, he made a careful examination of the proposed refuge for sage grouse and antelope. He has made a report, with a map of the proposed area, a full description, and a statement of the present conditions of game. He estimates 200 to possibly 400 antelope on this, their last stand in Oregon, where they are steadily decreasing in numbers. There are a few mule deer and great numbers of sage grouse on the proposed area which it is hoped to include in the refuge.

MIGRATORY BIRD TREATY AND LACEY ACTS

Mr. Lawyer, Chief U. S. Game Warden, presided at a conference in Salt Lake City, Utah, February 16-17, of Game Wardens whose territories are in the Rocky Mountain and Pacific Coast sections of the United States. Following is a list of the wardens, with headquarters, who were in attendance:

W. H. Ransom, 708 W. 20th Ave., Spokane, Wash.
Irving C. Emmett, 2651 Van Buren Ave., Ogden, Utah.
Chas. F. Heuser, Sacramento, Calif.
Geo. I. Tonkin, Boise, Idaho.
Ernest P. Walker, 1312 E. Filmore St., Phoenix, Ariz.
Geo. E. Mushbach, Billings, Mont.
Ray C. Steele, Seattle, Wash.

Mr. Lawyer also presided at a conference in St. Louis, Missouri, February 23-24, of Game Wardens, whose territories are in the Middle West. The following wardens were in attendance:

Harry Barmeier, 2847 Victore St., St. Louis, Mo.
Geo. C. Shupee, San Antonio, Tex.
C. F. Asmuth, 200 West Water St., Milwaukee, Wis.
B. G. Merrill, Hinsdale, Ill.
B. J. Shaver, of State Fish and Game Commission, St., Paul, Minn.
John Q. Holmes, Orleans, Nebr.
John E. Perry, 1606 Walnut St., Vicksburg, Miss
E. V. Visart, 2705 State St., Little Rock, Ark.
W. H. Hoffman, Mobile, Ala.

Mr. W. F. Bancroft spent February 26 in New York City and February 27 in Philadelphia, Pa., making investigations in connection with violations of the Lacey Act. He returned to Washington on February 28.

Mr. Wm. H. Seaman, Deputy Game Warden, Fall River, Mass., reports under date of February 5 that, for the six weeks previous, the rivers and bays in Massachusetts were frozen over so completely as to preclude wildfowl from obtaining natural food. He states that thousands of ducks have assembled on the rivers at South Westport and South Dartmouth, where efforts have been made to feed them by the State Commissioners of Fisheries and Game as well as by other interested persons.

Mr. Wilbur F. Smith, Deputy Game Warden, South Norwalk, Conn., reports that since the beginning of the close season on January 16, it is said that not a shot has been fired and consequently thousands of wild waterfowl on the Housatonic River have become practically tame. On one occasion he approached a flock of over 500 black ducks sitting on the shore and reached a distance of about 100 feet from them before they flew.

Mr. Theodore M. Seeholzer, Deputy Game Warden, Logan, Utah, in a report dated January 31, states that residents of Logan and vicinity were surprised at the great variety of waterfowl to be seen. He reports that the river is lined with mallards, bald-pate, shoveller(or broadbill), and teal.

Several of our cooperative wardens in California report an unprecedented drought throughout that State, with the result that the waterfowl are very crowded on all water areas. The birds remain in these places constantly as there is an abundance of feed.

Because of the many inquiries received concerning the sale of plumes of birds of paradise it may be stated that the bird of paradise and parts thereof, are not covered by the Migratory-Bird Treaty Act. The Tariff Act of 1913 enforced by the Treasury Department, prohibits the importation of plumes of the bird of paradise into this country, but all plumes in possession prior to the passage of that act can be sold without violating the Federal law.

Reports received indicate a large migration of ducks and geese, particularly throughout the Mississippi Valley.

It was with regret that the Bureau learned of the death of the daughter of United States Game Warden B. G. Merrill, Hinsdale, Ill., and sympathies of the Bureau are extended to him in his bereavement.

Mr. Albert E. Frederick, a clerk in the Washington office, has resigned, effective March 5, to accept employment with a large manufacturing concern at Pittsburgh, Pa.

Mr. Bertrand E. Smith, will assume his official duties as Game Warden, on March 1, with headquarters at Portland. This territory includes the States of Maine, New Hampshire, and Vermont.

Mr. John E. Perry has taken up active duties as Game Warden in Mississippi, with headquarters in Vicksburg.

Mr. Charles F. Heuser with headquarters at Sacramento, was appointed Game Warden, effective February 6, to take charge of Federal game law enforcement over northern and central California, southern California having already been assigned to Mr. Ernest P. Walker, of Phoenix, Ariz., who also has that portion of the State of Arizona south of the Colorado River.

Mr. William H. Hoffman, of Pullman, Ill., who has been serving as Deputy Game Warden, was appointed Game Warden effective February 9 and assigned to the State of Alabama with headquarters at Mobile.

Mr. R. C. Steele was appointed Game Warden effective February 9, and will take up his headquarters at Seattle, Wash. His territory will comprise that portion of the States of Oregon and Washington west of the Cascades.

Mr. Eugene S. Cattron, of Portland, Oreg., resigned as Game Warden , effective February 29. Eastern Oregon has been included in the territory of Mr. George Tonkin, Game Warden, Box 1531, Boise, Idaho; and Oregon West of the Cascades, to Warden Steele, as above noted,

The following Deputy Game Wardens were appointed during the month of February:

Daniel J. Yeakum, New Meadows, Idaho.
Edward R. Cooper, 707 - 10 Wall St., New York City.
Permanent headquarters - Chicken, Alaska.
Frank D. Voorhees, 1905 Grandview Ave., Portsmouth, Ohio.
James W. Ibach, 608 Washington Ave., Cairo, Ill.
Eugene D. Musher, 406 E. Arch St., Marquette, Mich.
William F. Holcomb, Grafton, Ohio.
William Curry, 40 Madison St., Annapolis, Md.
John W. Atwood, R. D. #1, Zanesville, Ohio.
Chas. E. Hames, R. D. #4, Lima, Ohio.
Otto G. Gewinner, 2620 N. 19th Ave., Omaha, Nebr.

The following appointments of Deputy Game Wardens were terminated during the month:

John E. Perry, 1012 Seymour St., Nashville, Tenn. (App't. Game Warden)
Wm. H. Borfman, 11345 Watt Ave., Pullman, Ill. (App't. Game Warden)
John L. Quigley, R. R. #1, Shelbina, Mo.
Herman Nohr, Russell's Point, Ohio.

FIELD DIRECTORY OF THE BIOLOGICAL SURVEY
STATES EAST OF THE MISSISSIPPI RIVER

---ALABAMA---

BIRD TREATY AND LACEY ACTS

'm. H. Hoffman, Warden,
Mobile.
'homas E. Dennis, Deputy Warden,
Monroeville

BIRD TREATY AND LACEY ACTS Con.

A. Z. Oberhaus, Deputy Warden,
Mobile.
Walter J. Howard, Deputy Warden,
Opelika.

---CONNECTICUT---

BIRD TREATY AND LACEY ACTS

'ilbur F. Smith, Deputy Warden,
198 Ely Ave., South Norwalk,
'eorge E. Woodbine, Deputy Warden,
97 Everit St., New Haven.

BIRD TREATY AND LACEY ACTS Con.

James F. Bugbee, Deputy Warden,
Lyme.
Donald Page, Deputy Warden,
Milford.

---DELAWARE---

BIRD TREATY AND LACEY ACTS

ıbert F. Dillahay, Deputy Warden,
Dover.

---FLORIDA---

BIOLOGICAL INVESTIGATIONS

Arthur H. Howell, Assistant Biologist,
Washington, D. C. (Biological survey.)

MAMMAL AND BIRD RESERVATIONS

'. J. Ashe, Warden,
Key West Rev., Key West.
'. Kroegal, Warden,
Pelican Isl. Res., Sebastian.
P. J. Pacetti, Warden,
Mosquito Inlet Res., Ponce Park.
Asa N. Pillsbury, Warden,
Passage Key Res., Palma Sola.

BIRD TREATY AND LACEY ACTS

B. J. Pacetti, Warden,
Ponce Park.
E. P. Whitehead, Warden,
Tallahassee.
Samuel H. Thompson, Deputy Warden,
Fort Myers.

---GEORGIA---

BIRD TREATY AND LACEY ACTS

Gilbert R. Rossignol, Warden,
1133 E. 48th St., Savannah.

---ILLINOIS---

BIRD TREATY AND LACEY ACTS

B. G. Merrill, Warden,
Hinsdale.
E. H. Ahlander, Deputy Warden,
2618 N. Kimball Ave., Chicago.
Robert F. Christ, Deputy Warden,
Quincy.
Morven R. Fakes, Deputy Warden,
Carbondale.

BIRD TREATY AND LACEY ACTS Con.

W. C. Peacock, Deputy Warden,
5312 Hyde Park Blvd., Chicago.
Irving Pearson, Deputy Warden,
Chillicothe.
Edward F. Rietz, Deputy Warden,
421 S. Dearborn Ave., Kankakee.

---ILLINOIS*Cont'd---

BIRD TREATY AND LACEY ACTS Con.

Warren L. Sessler, Deputy Warden,
Havana.
James W. Ibach, Deputy Warden,
608 Washington Ave., Cairo.

---INDIANA---

BIRD TREATY AND LACEY ACTS

Frederick M. Ehlers, Deputy Warden,
2720 Highland Place, Indianapolis.
George W. Lindemuth, Deputy Warden,
2 North American Bldg., Fort Wayne.

BIRD TREATY AND LACEY ACTS Con.

Claude D. McGary, Deputy Warden,
Hammond.
Eric C. Haehnel, Deputy Warden,
357 N. Sheffield Ave., Hammond.

---KENTUCKY---

BIRD TREATY AND LACEY ACTS

Samuel W. Linebaugh, Warden,
Russellville.
Robert N. Malkin, Deputy Warden,
1024 Story Ave., Louisville.

---MAINE---

BIRD TREATY AND LACEY ACTS

Bertrand E. Smith, Warden,
Portland.
George E. Cushman, Deputy Warden,
78 Mellen St., Portland.

BIRD TREATY AND LACEY ACTS Con.

Lincoln A. Haycock, Deputy Warden,
Cherryfield.
Bela T. Wass, Deputy Warden,
Cherryfield.
George E. Hathorne, Deputy Warden,
70 Main St., Bangor.

---MARYLAND---

BIRD TREATY AND LACEY ACTS

Miles S. B. Knights, Warden,
Lock Box 564, Annapolis.
Wade H. Bedsworth, Deputy Warden,
Wetipquin.
William A. Davis, Deputy Warden,
212 Laurens St., Baltimore.
Chas. E. Hill, Deputy Warden,
Snow Hill.
Cyrus N. Joyce, Deputy Warden,
Arnolds.
Thomas L. Lechlider, Deputy Warden,
Silver Springs.

BIRD TREATY AND LACEY ACTS Con.

Charles H. Stanley, Deputy Warden,
2006 W. Lanvale St., Baltimore
Charles J. Carroll, Deputy Warden,
11 West Preston St., Baltimore.
William A. Warns, Deputy Warden,
Bel Air.
George H. Barnes, Deputy Warden,
St. Michaels.
William Curry, Deputy Warden,
40 Madison St., Annapolis.

---MASSACHUSETTS---

BIRD TREATY AND LACEY ACTS

Frederick W. Goodwin, Deputy Warden,
253 Lexington St., East Boston.
Carl E. Grant, Deputy Warden,
17 Taylor St., Gloucester.
James P. Hatch, Deputy Warden,
52 Dresden St., Springfield.

BIRD TREATY AND LACEY ACTS Con

William H. Seaman, Deputy Warden,
1030 County St., Fall River.
Patrick F. McCarthy, Deputy Warden
52 Williston Ave., Easthampton.
Walter A. Larkin, Deputy Warden,
155 Chestnut St., Andover.

---MASSACHUSETTS-Cont'd---

BIRD TREATY AND LACEY ACTS Con.

Elmer A. Macker, Deputy Warden,
North Grafton.
Samuel J. Lowe, Deputy Warden,
15 Juniot St., New Bedford.
Edward Babson, Deputy Warden,
40 Bass Ave., Gloucester.
Edward E. Backus, Deputy Warden,
P. O. Box 117, Ayer.
James E. Bemis, DeputyWWarden,
10 Summit St., Farmington.
Orrin C. Bourne, Deputy Warden,
321 State House, Boston.
Thomas L. Burney, Deputy Warden,
73 New Park St., West Lynn.
Harold L. Crosby, Deputy Warden,
41 Goodhue Ave., Dracut.
William Day , Deputy Warden,
South Carver.
Elisha T. B. Ellis, Deputy Warden,
21 Columbus Ave., N. Easton.
William H. Jones, Deputy Warden,
2 High St., Nantucket.
Allan Keniston, Deputy Warden,
Vineyard Haven.
William H. Leonard, Deputy Warden,
East Foxborough.
John F. Luman, Deputy Warden,
Palmer.

BIRD TREATY AND LACEY ACTS Con.

Everett B. Mecarta, Deputy Warden,
Harwich.
Peter P. Monahan, Deputy Warden,
44 Franklin St., Westfield.
Arthur M. Nichols, Deputy Warden,
North Adams.
Nathan W. Pratt, Deputy Warden,
North Middleboro.
Lyman E. Rubert, Deputy Warden,
36 Cleveland St., Greenfield.
William W. Sargood, Deputy Warden,
80 Maple St., Lee.
Dennis F. Shea, Deputy Warden,
49 Pleasant St., Ware.
Lysander B. Sherman, Deputy Warden,
Marshfield.
Jay N. Snell, Deputy Warden,
44 Sterling St., Worcester.
Orin D. Steele, Deputy Warden,
60 South St., Hingham,
Albert L. Stratton, Deputy Warden,
Syndicate Bldg., Gardner.
Charles E. Tribou, Deputy Warden,
24 Frost Ave., Brockton.
William E. Wheeler, Deputy Warden,
28 Garnet St., Fitchburg.
Frederick R. Zeigler, Deputy Warden,
24 So. John St., Pittsfield.

---MICHIGAN---

BIRD TREATY AND LACEY ACTS

John Baird, Deputy Warden,
Game, Fish, & Forest Fire Comr., Lansing.
Lawrence J. DuVall, Deputy Warden,
1132 Franklin St., Monroe.
John W. Ireland, Deputy Warden,
599 Baker St., Detroit.
John G. Johnson, Deputy Warden,
112 Lyon St., Grand Rapids.

BIRD TREATY AND LACEY ACTS Con.

Chas. A. Peterson, Deputy Warden,
Wolverine.
Frank B. Salisbury, Deputy Warden,
214 - S. 2nd St., Grand Haven.
Eugene D. Mosher, Deputy Warden,
406 E. Arch St., Marquette.

---MISSISSIPPI---

MAMMAL AND BIRD RESERVATIONS

Wm M. Sprinkle, Warden,
Breton Isl. Res., Pass Christian.
John E. Perry, Warden,
General Delivery, Vicksburg.

BIRD TREATY AND LACEY ACTS

---NEW HAMPSHIRE---

BIRD TREATY AND LACEY ACTS

George P. Wellington, Deputy Warden,
East Jaffery.

---NEW JERSEY---

BIRD TREATY AND LACEY ACTS

Phineas K. Hilliard, Warden,
110 Seaside Ave., Atlantic City.
Frank Pierce, Deputy Warden,
Salem.

BIRD TREATY AND LACEY ACTS Con.

Herbert A. Small, Deputy Warden,
Englewood.
Samuel J. Taylor, Deputy Warden,
Mount Holly.
Edward Von Steeg, Deputy Warden,
Arlington.

---NEW YORK---

BIRD TREATY AND LACEY ACTS

Philip S. Farnham, Warden,
Owego.
Albert Stadlmeir, Warden,
R. F. D. 100-A, Lackawanna.

BIRD TREATY AND LACEY ACTS Con.

Joseph H. Bayer, Deputy Warden,
7 Daisy St., Rochester.
R. P. Holland, Deputy Warden,
c/o American Game Prot. Assn.
233 Broadway, New York City.

---NORTH CAROLINA---

BIRD TREATY AND LACEY ACTS

William L. Birsch, Warden,
302 E. 2nd St., Washington.
Henry Forney, Deputy Warden,
Union Mills.

---OHIO---

BIRD TREATY AND LACEY ACTS

Marquis A. Charlton, Warden,
285 E. 12th Ave., Columbus.
James M. Chaffin, Deputy Warden,
1701 S. 4th St., Ironton.
Fred W. Clark, Deputy Warden,
1207 Ontario St., Cleveland.
Sherman Conover, Deputy Warden,
Gen'l Delivery, Newark.
Harry C. Crossley, Deputy Warden,
Put-in-bay.
Chas. C. Dale, Deputy Warden,
Gallipolis.
David W. Ferris, Deputy Warden,
Newton.

BIRD TREATY AND LACEY ACTS Con.

James W. Stuber, Deputy Warden,
715 Main St., Sidney.
Frank J. Wolf, Deputy Warden,
424 Pine St., Fremont.
Arlie B. Metcalf, Deputy Warden,
1212 Palmwood Ave., Toledo.
Charles E. Hanes, Deputy Warden,
R. F. D. #4, Lima.
Frank D. Voorhees, Deputy Warden,
1905 Grandview Ave., Portsmouth.
William F. Holcomb, Deputy Warden,
Grafton.
John W. Atwood, Deputy Warden,
R. D. #1, Zanesville.

---PENNSYLVANIA---

BIRD TREATY AND LACEY ACTS

Philip S. Farnham, Warden,
Owego, N. Y.

---RHODE ISLAND---

BIRD TREATY AND LACEY ACTS

Charles B. Barrington, Deputy Warden,
Box 22, R. F. D. #2, Newport.
Francis W. Hennessy, Deputy Warden,
192 Transit St., Providence.

BIRD TREATY AND LACEY ACTS Con.

Walter P. Medbery, Deputy Warden,
Riverside.

---SOUTH CAROLINA---

BIRD TREATY AND LACEY ACTS

Tudor H. Chisolm, Warden,
17 Water St., Charleston.
Robert C. Lebby, Deputy Warden,
192 Queen St., Charleston.

---TENNESSEE---

BIRD TREATY AND LACEY ACTS

Geo. L. Lane, Deputy Warden,
Portland.
Henry W. Lewis, Deputy Warden,
2140 Carlton Ave., Nashville.
Edwin M. Yerger, Deputy Warden,
80 Exchange Ave., Memphis, Tenn.

BIRD TREATY AND LACEY ACTS Con.

Robert H. Caldwell, Deputy Warden,
Hornbeak.
Selwyn D. Tucker, Deputy Warden,
c/o Bank of Commerce & Trust Co.,
14 S. Main St., Memphis.

---VERMONT---

BIRD TREATY AND LACEY ACTS

Erwin H. Metcalf, Deputy Warden,
91 Main St., Brattleboro.
Henry N. Rowley, Deputy Warden,
Shelburne.

BIRD TREATY AND LACEY ACTS Con.

Victor L. Hurlburt, Deputy Warden,
Grand Isle.

---VIRGINIA---

BIRD TREATY AND LACEY ACTS

Thomas T. Bloxsom, Warden,
Locustville.
Isaac T. Leach, Deputy Warden,
Colonial Beach.

---WEST VIRGINIA---

BIRD TREATY AND LACEY ACTS

Charles W. Brandon, Jr., Deputy Warden,
Philippi.

---WISCONSIN---

BIOLOGICAL INVESTIGATIONS

Hartley H. H. T. Jackson, Asst. Biologist,
Washington, D. C. (Biological survey.)

BIRD TREATY AND LACEY ACTS

Conrad F. Asmuth, Warden,
200 West Water St., Milwaukee.
Isaac H. Boomer, Deputy Warden,
200 Lake Drive, Oshkosh.
D. M. Cranston, Deputy Warden,
200 S. Monroe St., Green Bay.
William P. Elliott, Deputy Warden,
241 Fremont St., Whitewater.

BIRD TREATY AND LACEY ACTS-Con.

Edward Fess, Deputy Warden,
605 Willard Ave., Madison.
Edward W. Gautsch, Deputy Warden,
1125 So. 7th St., LaCrosse.
Willet T. Grey, Deputy Warden,
217 - 2nd St., Ashland.
Harley W. Mackenzie, Deputy Warden,
209 East 5th Ave., Antigo.
James W. McNaughton, Deputy Warden,
287 W. 5th St., Superior.
Valentine Raeth, Deputy Warden,
432 E. North Ave., Milwaukee.

THE SURVEY

Monthly News Bulletin of the Bureau of Biological Survey
United States Department of Agriculture.

Vol.1. Washington, D. C., April, 1920 No. 4.

THE SURVEY is issued for office and field men of the Biological Survey under authorization of the Chief of Bureau as a medium for furnishing information regarding the work of the Bureau, movements of the staff, changes in assignments, and news and personal items of importance, with a view to increasing the interest of the personnel in the work of the Bureau as a whole and in each one's individual work as related to it. Items which members of the force desire to have appear in future issues should be handed in through the appropriate member of the Committee on THE SURVEY, as follows; W. C. Henderson, representing the Bureau as a whole; W. B. Bell, Economic Investigations; W. Roy Dillon, Migratory-Bird Treaty and Lacey Acts; Walter P. Taylor, Biological Investigations; T. S. Palmer (whose name was through oversight omitted from the list in the February issue), Game Preservation; Wm. H. Cheesman, Editor.

GENERAL NOTES

The Appropriation Act for the Department of Agriculture has passed both the House and the Senate, and has been referred to a conference committee of both houses. If the act is finally approved without further change, the funds available for the Biological Survey will be practically the same for the fiscal year 1921 as for the current year. In addition, there will be an appropriation of $40,000 for work in Alaska in connection with the improvement of the reindeer herds and the enforcement of the laws for the protection of fur-bearing animals, the latter project being transferred from the Bureau of Fisheries of the Department of Commerce.

The monthly meeting of the Scientific staff was held, March 17, at the home of Dr. Walter P. Taylor, of the Biological Investigations Division. After a general discussion of the subject of casualties among birds occasioned by striking against lighthouses. Assistant Chief Henderson told of the elk situation at the Winter Elk Refuge, Jackson Hole, Wyo., as observed during his recent western trip; Major Goldman told of his visit to the proposed elk refuge on the Sitgreaves National Forest, Ariz; and Mr. A. H. Howell told of wild fowl conditions along the northwest coast of Florida, and exhibited specimens of a new Peromyscus related to P. polionotus, found in the white sand dunes of Santa Rosa Island. An interesting meeting is promised for April 21, at Dr. Bell's home, when several predatory animal hunters will be in the city in connection with a conference on their work, beginning April 19.

Mr. E. J. Thompson, who has been connected with the Bureau since 1905 and has filled the position of Chief Clerk and Executive Assistant for several years, was recently promoted to Assistant in Operations. Mr. Thompson will still be connected with the administrative office and will continue to handle many of his more important duties. He will, in addition, devote more time to the systematizing and correlation of the clerical work in field offices and will have occasion to visit these offices from time to time.

Mr. Harrison M. Hoyt has recently been promoted to Chief Clerk and Executive Assistant. He was transferred to this Bureau from the Office of Public Roads in 1915 and has been connected with the administrative office for several years. During the war against Germany he served with the American Expeditionary Forces in France.

Miss Clara Ruth has been transferred to the Biological Survey from the Solicitor's Office to take up work in the Maintenance of Reservations division, succeeding Miss Clara B. Milligan, who recently resigned from the Bureau.

Mr. Louis Klein, who has been in charge of the Bureau files for several years, resigned on March 4, 1920. Mr. Klein was always obliging and unusually efficient. He will probably enter some mercantile establishment in Massachusetts.

Miss C. B. Milligan, who was connected with the Maintenance of Reservations division and had been with the Bureau since 1904, recently resigned to accept a position in the commercial world. Miss Milligan was a very efficient clerk and will be much missed.

Two other resignations during the month were those of Mr. Henry U. Stone, on March 18, and Miss Della Knapp, on March 25. Both Mr. Stone and Miss Knapp had been with the Bureau less than one year, employed in the office of Accounts.

BIOLOGICAL INVESTIGATIONS

Major E. A. Goldman left Washington, March 22, to study conditions with regard to the Southern Yellowstone elk herd. It is expected that he will return to Washington about April 15.

Dr. H. C. Oberholser delivered a lecture on "Pleasure and Profit in Bird Study" before the Illinois Audubon Society, at Chicago, March 20.

During the last week in March Dr. A. Wetmore made a trip on the Survey's launch "Curlew" from Annapolis to Washington by way of Chesapeake Bay and the Potomac River to gather information on the distribution and abundance of waterfowl and other migratory birds at this season. He found three species of Scoters and abundant Old Squaw Ducks on Chesapeake Bay, and many thousands of Bluebills and other ducks on the upper Potomac. Swans were observed in Occoquan Bay.

Investigation of waterfowl conditions on the Gulf coast of Florida was carried on during January and February by Messrs. A. H. Howell and C. H. M. Barrett. The principal points visited were Choctawhatchee Bay, St. Andrews Bay, Apalachicola Bay, Apalachee Bay (Goose Creek), and Chassahowitzka Bay. Ducks and geese, though reported less numerous during the two past seasons, were still found in considerable numbers at several points on the coast. A search for ivory-billed woodpeckers, which are believed still to occur in small numbers in the Auccilla River swamps, was unsuccessful . Specimens of a new, very pale species of beach mouse were secured in the sand dunes on Santa Rosa Island.

Preparations for the departure of the expedition to be sent to Athabaska Lake have been going on for some days. Messrs. Hamilton M. Laing of Portland, Oreg; J. Alden Loring of Owego, N. Y, and Francis Harper, Biological Survey, in charge, will compose the party.

Mr. Frederick P. Lincoln, formerly of the Colorado Museum of Natural History at Denver, has joined the staff of the Biological Survey, and will be in charge of the work of bird banding. This work, previously carried on under the direction of the American Bird Banding Association, has recently been taken over by the Bureau.

With the view of ascertaining first hand the methods and results of bird-banding as practised by Mr. S. Prentiss Baldwin, Mr. Lincoln spent five days at Inwood Plantation, Thomasville, Ga. Five traps were operated from which Mr. Baldwin has handled 723 birds this season, 282 being new; i.e., requiring bands. Many of these were retrapped several times, some even developing a "trap habit," so that the total of 723 does not indicate that many different individuals, but rather the number of trappings. Of birds banded in 1916 and 1917, eleven were trapped this season as follows: Blue jays, 3; brown-thrasher, 2; red-bellied woodpecker, 1; myrtle warbler, 2; white-crowned sparrow, 1; cardinal, 1; and hermit thrush, 1.

It is hoped that the Survey will be able to establish a number of stations similar to Mr. Baldwin's throughout the country, where birds may be systematically banded and trapped, thus affording data of great value in determining the exact routes of migration; the speed of travel, spring and fall; causes of unusual movements and their extent; tenability of the theory that some birds mate for life; which birds return to the nest site of the previous year; and innumerable other problems that have seemed impossible of solution because of the doubt regarding the identity of the individual. Any suggestions from the staff will be welcomed, as the work must be one of gradual development.

One of the most vital problems in this work is the task of trapping waterfowl and shorebirds in numbers. It is planned to concentrate on these groups, as the resultant data will be of value in the enforcement of the Migratory Bird Treaty Act.

ECONOMIC INVESTIGATIONS

On March 1 and 2 Mr. Lawyer and Dr. Fisher attended the sixth National Conference of the American Game Protective Association at the Waldorf-Astoria Hotel, New York. The attendance was larger than at any previous meeting and the dinner on the evening of March 2, which closed the conference, was attended by several hundred sportsmen and others interested in game and the out-of-doors. Mr. William B. Boulton was toastmaster, and among the speakers of the evening were Col. Henry S. Graves, Honorable George D. Pratt, Conservation Commissioner of New York, and Mr. William L. Finley, who entertained with moving pictures. Mr. Nelson's paper on "Federal and State Game Refuges," in his absence was read at the second day's session. The program was so full of good papers that there was little time for discussion, and the probabilities are that the next conference will be a three day's session.

A conference has been called at Washington for April 19 to consider problems of organization and methods of field operation in predatory animal work. Mr. S. E. Piper, Field Supervisor, and Predatory Animal Inspectors E. R. Sans, George E. Holman, Stanley G. Jewett, J. Stokley Ligon, and C. R. Landon are being brought to Washington in this connection, as they are in touch with conditions which are typical of the requirements of the predatory animal work throughout the territory in which this work is in progress. It is hoped that plans which have been under consideration for some time may be crystallized at this conference and that it may be possible through points developed at this time to standardize procedure along lines which have proved satisfactory, and to plan and project lines of work that will be of great interest and value to the live stock producers of the West.

Owing to the necessity for Mr. S. E. Piper in his capacity as Field Supervisor, to resume more largely general field work which will allow less time for the special work upon which he has been engaged in New Mexico, Mr. Charles J. Bliss has been placed in charge of the rodent work in the New Mexico district, thus taking over a portion of the responsibilities heretofore carried by Mr. Piper and Mr. Stonier. Mr. Stonier will continue his work, giving special attention under the direction of Mr. Bliss to the organization and conduct of field operations.

The progress reports for the six months ending December 31, 1919, have been received from the Arizona, California, Colorado-Kansas, Montana, Nevada, New Mexico, Oklahoma, and Washington rodent districts; and from the Arizona, Colorado, Montana-North Dakota, Nevada-California, Oregon-Washington-Idaho, Texas, Utah, and Wyoming-South Dakota predatory animal districts. These reports are very gratifying in that they show increased efficiency on the part of the Bureau forces and greater interest in our work by individual citizens and stockmen's associations.

Mr. Samuel Applegate, of San Francisco, who has had long experience in Alaska, and who probably has a more intimate knowledge of the Aleutian Chain of islands than any other man, recently visited the Biological Survey. He has always been glad to cooperate with the Bureau and has furnished important information in regard to topography of the islands and data relating to birds, and foxes and other mammals of the region. During his present visit he was accompanied by Mr. Lewis Strauss of Unalaska, who is the representative of the Alaska Commercial Company.

Mr. W. C. Jacobsen, formerly in the employ of the Bureau as Biological Assistant in charge of the rodent work in California but now cooperating with the Biological Survey as Superintendent of Rodent Control for the California Department of Agriculture, visited the Bureau early in March in the interests of the predatory animal and rodent work in California. In addition to the important work which Mr. Jacobsen is doing in rodent control in California, the last session of the Legislature placed upon his division responsibility for securing information regarding predatory animal conditions in California, the assembling of information regarding practicable procedure in the eradication or control of these animals, and development of plans for the consideration of the State Legislature at its next session.

A report from Funsten Brothers shows that at the January fur sale skins turned in by the Inspectors of the Biological Survey brought $24,800. 75, which brings up the total of sales from the fiscal year 1916 to the present time to $234,389.11.

The headquarters of Mr. Benj. J. Melton have been changed from Lawton to El Reno, Okla.

On the first of April, Mr. Stanley G. Jewett, Predatory Animal Inspector of the district including Oregon and Washington, will change his headquarters from Pendleton to 220 P. O. Bldg., Portland, Oreg.

Mr. E. A. Chapin left the Section of Economic Ornithology on March 31, to take up work in parasitology in the Zoological Division of the Bureau of Animal Industry. His initial work in his new field will be a study of the parasites of sheep. These researches will be carried out on the experimental farm at Vienna, Va.

The following named gentlemen have been added to the field force of the Division of Economic Investigations. The Biological Assistants and Field Assistants will be engaged in rodent work; the Predatory Animal Inspectors in exterminating predatory animals in the districts in which their headquarters are located; and the Assistant Biologist, Dr. Hanson, will be in charge of the Experimental Fur Farm at Keeseville, N. Y.

Dorr D. Green,	Biological Assistant,	Boise, Idaho.
Robert Luckenbill	" "	Clayton, N. Mex.
David Wyatt,	" "	Roswell, N.Mex.
Albert M. Day,	" "	c/o Extension Service, Laramie, Wyo.
Percy L. DePuy,	" "	Manhattan, Kan.
Herbert R. Wells,	" "	c/o Extension Service, Agricultural College, N. Dak.
Ed. Tallman, Jr.,	" "	Gazette Bldg., Reno, Nev.
Elmer Williams,	" "	Manson, Wash.
Karl B. Hanson,	Assistant Biologist,	Keeseville, N. Y.
E. J. Kepler,	Field Assistant,	Bozeman, Mont.
R. K. Stewart,	Predatory Animal Inspector,	Boise, Idaho.
F. J. Hale,	" " " "	Lander, Wyo.
John O. Miller,	" " "	Gazette Bldg., Reno, Nev.
Bert B. Turner,	" " "	204 Atlas Bldg., Salt Lake City, Utah.
S. P. Young,	" " "	Box 765, Phoenix, Ariz.

[illegible] early in the employ of the Bureau of [illegible] assistant in [illegible] in California but now [illegible] Biological [illegible] Extension of Insect Control for [illegible] Department of Agriculture, visited the Bureau early in March in [illegible] of [illegible] animal and rodent work in California. In addition to [illegible] Mr. Hamilton is doing in rodent control in California, [illegible] of the Legislature placed upon his division responsibility for advising [illegible] for regulation of predatory animal conditions in California, the assembling of information regarding practicable procedure in the eradication or control of these animals, and development of plans for the establishment of the State [illegible] at the next session.

A report from Bureau headquarters shows that at the January [illegible] carried in by the inspectors of the Biological Survey through the [illegible] for the month of January from the Fiscal year 1919 to the present time is [illegible].

The headquarters of Mr. Geo. T. Hanson have been moved from Denver [illegible] Ohio.

On the [illegible] of April, Mr. Seymour S. Arvesen, [illegible] in Animal Husbandry [illegible] station in Building Garden and Washington, will change his headquarters from headquarters to 1825 L. S. Hogg, [illegible] Bureau.

Mr. E. A. Chapin left the Bureau of Biological Controlling on [illegible] in [illegible] work in entomology in the Zoological Division of [illegible] Mr. Chapin's entire work in this new field will [illegible] of the [illegible] Bureau. Plans for his work will be worked out on [illegible] department [illegible].

[illegible] a good deal has been done during the [illegible] Bureau investigations. The Biological [illegible] will be managed in the [illegible] Department [illegible] in the [illegible] predatory animals in the Highlands in making [illegible] the Laboratory Biologists, Mr. H. [illegible], will be [illegible] the [illegible] Fur Farm at Greenville, N. Y.

Mr. W. [illegible], Biological Assistant, [illegible], Iowa.
[illegible] Wyoming.
[illegible] Ohio.
[illegible] Ohio.
Albert [illegible], " " [illegible] Predatory Animal Service, Burnside, Ky.
[illegible] " " [illegible], Ohio.
[illegible] " " [illegible], Ohio.
Robert H. Wells, " " [illegible] Extension Service.
Agricultural College, N. Dak.
Mr. Thomas, Jr., " " Hamilton Lodge, Glen, Mont.
Fleur Williams, " " Denver, Colo.
Earl E. Barton, Assistant Biologist, Greenville, N. Y.
R. L. Kopler, Field Assistant, Bozeman, Mont.
R. E. Stewart, Predatory Animal Inspector, Boise, Idaho.
[illegible] " " " Butte, Mont.
[illegible] " " " Lewiston, Idaho.
Geo. S. Tarbet, " " [illegible] Ariz.
[illegible] " " [illegible]
[illegible] Tex. Univ., [illegible]
E. E. Young, " " " San Ten. Phoenix, Ariz.

Mr. F. G. Lewis, Biological Assistant, who has been employed in the rodent work in Arizona, resigned effective March 10.

MIGRATORY BIRD-TREATY AND LACEY ACTS

Mr. Irving C. Emmett, U. S. Game Warden, Ogden, Utah, has been called to Washington to assist temporarily in the office work.

Mr. Lawyer was at Annapolis, Md., on March 16, inspecting and arranging for the overhauling of the government launch "Curlew". On the evening of March 17 he attended a meeting at Baltimore of the Maryland Game Protective Association.

The case of State of Missouri vs R. P. Holland, involving the constitutionality of the Migratory Bird-Treaty Act, was argued in the Supreme Court of the United States on March 2. It is hoped that a favorable decision will be rendered within a short time.

During February, U. S. Game Warden C. P. S. Smith apprehended two violators of the Migratory Bird Treaty Act in the Back Bay section of Virginia. These men were bound over for the action of the Federal Grand Jury. He also arrested on March 17, at Havre de Grace, Md., three parties found hunting wild ducks; the violators tried to escape, but after considerable maneuvering Warden Smith got them ashore and took them to Baltimore for examination, where the U. S. Commissioner held them for the action of the Grand Jury.

Warden Hilliard, on March 4, after great risk in a small boat in heavy floating ice, on Tuckerton Bay, New Jersey, succeeded in apprehending an individual who has been a persistent violator of the Federal law, and the case has been reported for proceeding by information. On March 23 he arrested three other violators who had been killing geese; two of these men last year were arrested on a similar charge and convicted in the Federal court.

Because of reports received in previous years concerning the slaughter of plume bearing and other migratory birds after the close of the Federal open season in Florida and the sale of plumes for millinery and other trade purposes, it was thought advisable to place a number of game wardens in Florida and other southeastern States during the months of February and March. This expedition of wardens was most successful and resulted in the apprehension of many violators, several of whom have already been prosecuted and have paid fines in the Federal court. While on this special work in the South, Wardens Pacetti, Farnham and Birsch arrested an individual charged with possession and offering for sale of heron plumes. A large number of plumes of an estimated market value of $10,000 were seized and the violator was fined $250 in the Federal court. A few cases of this calibre will cause a much more wholesome respect for the Federal law. In addition, five other persons apprehended by Warden Linebaugh while killing ducks were convicted and fined in the Federal court for the Southern District of Florida. Several cases involving the sale of wild ducks, doves, and aigrettes, and the killing of birds were secured in Alabama, Florida, Georgia, and South Carolina by Wardens Birsch, Charlton, Chisolm, Farnham, Knights, Linebaugh, and Rossignol.

Several seizures of wild ducks in cold storage were made in Oregon and Washington by U. S. Game Wardens Steele and Ransom; in Iowa by Warden Asmuth; and in Maryland and Virginia by Warden C. P. S. Smith.

A number of cases against persons charged with the purchase and sale of wild ducks have been recently secured by Wardens Smith and Knights at Crisfield,

On March 22 a violator charged with selling wild ducks was arraigned in Federal court at Baltimore, and paid a fine of $50; on March 18 another violator charged with a similar offense was fined $10 by the same Judge. Warden C. P. S. Smith secured the evidence in these cases.

Eleven violators apprehended by Warden E. V. Visart appeared in Federal court at Texarkana, Tex., on March 15 and each was fined $10.

Many violators have also been apprehended in Missouri, Nebraska, Kansas, Kentucky, Illinois, and Iowa during the month and it is believed that the activities of the wardens operating in those States will have a wholesome effect.

Warden Charlton was successful in securing considerable evidence against parties who have been shipping excess numbers of ducks from South Carolina to other States, and secured cases in South Carolina and Georgia involving the sale of wild ducks.

Warden Stadlmeir has recently reported several cases involving the sale of aigrettes.

Two cases involving the killing and transportation of swan and one case involving the interstate shipment of wild ducks are reported by Warden Mushbach of Montana.

Warden Bloxsom reported a case involving the killing of Canada geese in Maryland and another concerning the killing of a heron in Delaware.

Warden Shupee of Texas reported several cases where plumes of herons were offered for sale and others involving the killing of swans. Mr. Shupee has also secured several releases turning seized plumage over to the Bureau for scientific and educational purposes.

Warden Perry secured evidence in several cases in Tennessee concerning the killing of swans.

Warden Whitehead reported cases involving the transportation of wild ducks in violation of the laws of Florida, and in addition a case involving the offering of aigrettes for sale.

A violator charged with killing two wild ducks was arrested by U. S. Deputy Game Warden W. L. Sessler of Havana, Ill., March 9, and arraigned in Federal court at Springfield, Ill., on March 11, and fined $50.

Deputy Warden E. M. Yerger of Nashville, Tenn., has also succeeded in securing several good cases involving the killing and interstate shipment of migratory birds.

Deputy Warden Sherman Conover of Newark, Ohio, has reported a case involving the killing of wild ducks.

Deputy Warden John O'Connell of Stockton, Calif., reported a case of the sale of wild ducks.

Deputy Warden J. W. Atwood of Zanesville, Ohio, in a report to the Bureau under date of March 1 stated that he had seen large flocks of robins, which was unusual for that time of year.

The extreme drought, reported in the March issue of THE SURVEY as existing in California, which if uninterrupted was likely to cause disease among the birds crowded on the limited water areas, has been broken by recent heavy rains and snowfall and as reported by Deputy Game Warden George Neale, of Sacramento, the serious situation menacing the safety of the waterfowl has been relieved.

A report has been received from one of the Bureau's cooperative wardens in Oklahoma to the effect that crows in great numbers are causing considerable damage and destroying the eggs of other birds in that section.

Deputy Warden H. C. Hillebrandt, of High Island, Tex., states that large numbers of wildfowl have been forced to leave that section of the coast owing to West Indian hurricanes flooding the lowlands with salt water and destroying the feed.

The Bureau learned with regret of the death of U. S. Deputy Game Warden Chester A. Scroggs of Loomis, Calif. Mr. Scroggs, was among the first of the deputy wardens to be appointed under the Migratory Bird Treaty Act and has also served for many years in the capacity of State Game Warden in the employ of the Fish and Game Commission of California.

The following appointments have been made to the position of U. S. Deputy Game Warden since the last issue of the Survey:

William Preece, Vernal, Utah.
Wm. H. Anderson, 3825 Washington Ave., Ogden, Utah.
Hilton A. Robertson, Box 262, Springville, Utah.
Frank A. Milinski, Celina, Ohio.
Lucius Armitage, 282 E. 162d St., New York City.
Elmer E. Craber, Newton, Iowa.
John C. Harz, 2241 - 8th Ave., New York City.
Andrew J. Beach, 3615 Whitman Ave., Seattle, Wash.
Wm. H. Downing, Box 433, Waverly, Ohio.
Theodore Bauer, 180 Grace St., Dubuque, Iowa.
George B. Coon, Albia, Iowa.
George Payton, 701 N. 14th St., Centerville, Iowa.
Wm. E. Arnold, Auburn, Nebr.
Louis Veprek 2535 So. Troy St., Chicago, Ill.
Herman A. Uterman, R. R. #5, Canton, Ill.
Gottlieb W. Trunk, R. F. D. #6, Peoria, Ill.
Dan Gelius, 1458 South 15th St., Omaha, Nebr.
Wm. J. Smittle, 748 Mill St., Council Bluffs, Iowa.
Wm. F. Watters, 152 Dartmouth St., Rochester, N. Y.

Mr. Jay V. Kelsey has been appointed Game Warden for the district of South Dakota, with headquarters at Watertown. He takes up his duties about April 1.

Mr. Bernhardt R. Britton was appointed to the position of Game Warden, effective March 1, for the district of New Mexico, with headquarters at Albuquerque.

The appointments of the following U. S. Deputy Game Wardens were terminated:

Sherman C. Bailey, 603 America Ave., Bemidji, Minn.	effective February 29.
Peter J. Karpen, French River, Minn.	" /" "
Selwyn D. Tucker, 14 So Main St., Memphis, Tenn.	" March 15.

The addresses of the following game wardens have been changed, and are now as follows:

Ray C. Steele, 1402 - 5th Ave., Seattle, Wash.
Geo. E. Mushbach, Box 438, Billings, Mont.
Geo. Tonkin, Box 1531, Boise, Idaho.
Wm. H. Hoffman, 105 N. Franklin St., Mobile, Ala.
John E. Perry, 712 Veto St., Vicksburg, Miss.
Geo. C. Shupee, Box 964, San Antonio, Tex.

Corrections of March Issue

On page 5, under the heading "Migratory Bird Treaty and Lacey Acts"- George Tonkin instead of George I. Tonkin.

On page 5, the name of the street on which U. S. Game Warden Harry Barmeier resides is Victor, instead of "Victore,"

On page 5, the address of U. S. Game Warden B. J. Shaver, St. Paul, Minn., is "c/o State Game and Fish Commissioner," instead of "of State Fish and Game Commission."

On page 8, under the heading "Florida" (Bird Treaty and Lacey Acts) Mr. Whitehead's middle initial is "B" instead of "P."

THE SURVEY

Monthly News Bulletin of the Bureau of Biological Survey
United States Department of Agriculture.

Vol.1 Washington, D. C., May, 1920 No.5

THE SURVEY is issued for office and field men of the Biological Survey under authorization of the Chief of Bureau as a medium for furnishing information regarding the work of the Bureau, movements of the staff, changes in assignments, and news and personal items of importance, with a view to increasing the interest of the personnel in the work of the Bureau as a whole and in each one's individual work as related to it. Items which members of the force desire to have appear in future issues should be handed in through the appropriate member of the Committee on THE SURVEY, as follows; W. C. Henderson, representing the Bureau as a whole; W. B. Bell, Economic Investigations; W. Roy Dillon, Migratory-Bird Treaty and Lacey Acts; Walter P. Taylor, Biological Investigations; T. S. Palmer, Game Preservation; Wm. H. Cheesman, Editor.

GENERAL NOTES

Some publicity having been given the issuance of THE SURVEY, many requests have been received for copies of it and to have names entered on its mailing lists. To these, replies have been made to the effect that as the mailing list is limited it is not possible to comply with the requests; and informing the writers that the news bulletin is intended primarily for employees of the Bureau, to keep them informed regarding matters which directly or indirectly concern them, with a view to stimulating interest and efficiency in the work, and that it is not in any sense a publication.

Members of the staff of the Biological Survey who will attend the second annual meeting of the American Society of Mammalogists, at the American Museum of Natural History, New York City, May 3 to 5, are Messrs. Nelson, Palmer, Goldman, Bailey, Jackson, Taylor, and Dearborn.

Assistant Chief Henderson left on April 28 on a short business trip in connection with several of the bird reservations in Florida.

Mr. E. J. Thompson, Assistant in Operations, was called to his home in Connecticut on May 1, by the sudden death of his brother, Royal Thompson, of Hartford.

The most largely attended meeting the Scientific Staff has had was that of April 21 at the home of Dr. W. B. Bell, of the Division of Economic Investigations, 29 being present. This included six members of the field staff connected with predatory animal control work - Messrs. Piper, Sans, Ligon, Jewett, Landon and Holman - each of whom spoke interestingly on the work of his district. Those who participated in the discussion were Messrs Jackson, Morrison, Wetmore,

Lawyer, Bailey, Fisher, Nelson, and Merriam. The next meeting will be held Wednesday evening, May 19, at the home of Mr. A. H. Howell, of the Division of Biological Investigations.

Following are recent contributions of the Bureau to the Department's series of publications:

Dept. Bull. 794. Waterfowl and Their Food Plants in the Sandhill Region of Nebraska: Part 1, Waterfowl in Nebraska, by Harry C. Oberholser, Assistant Biologist; Part 2, Wild-Duck Foods of the Sandhill Region of Nebraska, by W. L. McAtee, Assistant Biologist. Pp. 77, pls. 5, March 23, 1920.

Dept. Circ. 88. Annual Reprt of the Governor of Alaska on the Alaska Game Law, 1919. Pp. 18, April 23, 1920.

BIOLOGICAL INVESTIGATIONS

Major Goldman returned to Washington the last week of April after an investigational trip in cooperation with the Forest Service securing information bearing upon the wintering of elk and the general management of the herds in the Jackson Hole region, Wyoming. Joining Supervisor A. C. McCain, of the Teton Forest, at Jackson, trips were made to various parts of the winter elk range. The animals fed by the Biological Survey at the Winter Elk Refuge and by the State of Wyoming at various points, are reported to be in fair condition. Those wintering on scanty forage in the hills, however, have fared badly in places, and owing to the backward season it is feared that spring losses will be heavy.

Mr. A. H. Howell has begun work on a revision of the chipmunks (genus Eutamias); although the Biological Survey collection contains large series of these animals, there are still many regions from which more material is needed before the relationships of the various species can be definitely settled. Among the localities from which specimens are badly needed are the mountain ranges of central and eastern Nevada and of southern and eastern Utah.

ECONOMIC INVESTIGATIONS

Dr. W. B. Bell, of the Washington office, will leave early in May for an extended trip through the West in order to review the work and assist in outlining plans for future operations in the rodent and predatory animal districts. His first stop will be in Manhattan, Kans., whence he will proceed to points in Colorado and Utah, then north through Wyoming, Nebraska, South Dakota, and North Dakota, and then to the coast and south through California. This trip and the eastward return will cover as fully as possible the territory in which control work is at present organized. It is planned that several areas where rodent eradication has been practically completed will be visited with a view to ascertaining field conditions and arranging for completing extermination of the pests involved.

A very interesting and helpful conference was held in the Washington office during the week of April 19-24, in which there was a general discussion of plans of organization and methods of procedure in the predatory animal work

In order that a broad survey of the field might be made with a view to standardizing organization and procedure along practical lines adapted to meet conditions in the /West, a number of men were selected who would represent typical conditions throughout the areas involved in our predatory animal operations. Mr. S. E. Piper, field supervisor, and Messrs. Landon, Ligon, Holman, Sans, and Dewett, predatory animal inspectors, were brought to Washington and took part in the conference. This conference afforded an opportunity to review the development of predatory animal operations since the organization in 1915 and to consider in the light of past experience the steps which should be taken in developing and carrying forward the work.

The matter of cooperation with State and stockmen's organizations was a live topic and came in for extended discussion and consideration. In view of the enormous area to be covered in the predatory animal operations, it was considered desirable to project plans and procedure along lines that would correlate Federal, State, association, and private activities in order that there might be concerted, organized action and that the work might be conducted most economically and at the same time yield the largest possible return to live stock owners and the live stock industry.

Considerable interest has developed in the poisoning campaigns against coyotes. A review of the very extended campaigns which have been conducted during the past winter showed conclusively the importance of this phase of our operations in ridding live stock ranges of coyotes and in promptly eliminating losses of live stock from this source.

All of the inspectors in attendance have returned to their districts. Mr. Piper remained at the Washington office a few days longer in order that details incident to the conference might be completed. On his return trip to Albuquerque, N. Mex., he will visit points in Wyoming, Colorado, and Utah.

Reports from the field indicate that the campaign against ground squirrels and prairie dogs is moving forward vigorously and with good organization and cooperation in practically all the districts where this work is being conducted. The growth of this organized cooperative work has been remarkable, and it is hoped that the present season will be the banner one in area covered, number of cooperators, amount of poisoned grain used, and in the value of crops saved from destruction by these pests. Last year funds contributed by cooperating State and county organizations totaled over $700,000, in addition to funds expended by the Bureau, and it is believed that the campaign this year will approach or exceed the million dollar mark.

Mr. W. F. Kubichek of the section of Economic Ornithology was in Missouri the first week of April, surveying wild-duck feeding grounds, with a view to suggesting inprovements.

Mr. A. W. Moore has recently forwarded to the Washington office several specimens of pocket gopher taken in connection with the campaign which he is conducting against these animals in the vicinity of Yuma, Ariz. He has secured many interesting notes regarding the life history and habits of the species occurring in that locality, and the specimens which he sent in will be studied for the purpose of ascertaining other points of value regarding their life history and characteristics.

Mr. L. S. Neville has been appointed biological assistant and assigned to assist Mr. F. E. Garlough in carrying on the campaign against ground squirrels and other rodents in California.

Mr. Walter D. Perry has been transferred from Manhattan, Kans., to Lincoln, Nebr., were he will be engaged in the rodent eradication campaign under the direction of Mr. A. B. Plummer.

Miss Susie E. Stephens has tendered her resignation as stenographer in the office of Mr. R. E. Bateman, Billings, Mont., and Miss Nellie M. Sinclair has been appointed as her successor.

Mr. David H. Wyatt has tendered his resignation as biological assistant in the rodent work of the New Mexico district.

Mr. Joseph Thometz resigned as field assistant in Idaho, headquarters Boise, effective April 30.

MAMMAL AND BIRD RESERVATIONS

Capt. W. F. Bancroft is now Acting in Charge of the Division of Mammal and Bird Reservations, as well as handling Lacey Act cases under the Migratory Bird Division.

Mr. F. W. Triska, who has been acting as assistant warden on the National Bison Range in Montana, has been transferred to the Niobrara Reservation to assist Inspector F. M. Dille on various projects to be carried on during the summer at several big game reservations.

A new warden will soon be appointed on the Winter Elk Refuge to assist Mr. D. C. Nowlin who is in charge of the Refuge. The appointment will be made from a list of eligibles resulting from the Civil Service examination held April 7. Increased farming operations carried on on the Refuge--particularly putting up hay for feeding elk in the winter has made necessary the purchase of an additional team of work horses.

In spite of the severe snow storm which swept over a number of northwestern States on April 16, Warden Chambers of the Wind Cave Preserve, in South Dakota, reports that all the animals came through in good shape, so far as he has been able to ascertain. He reports that snow two feet on the level covered almost the entire Preserve, and in some places had drifted from eight to nine feet deep. The only telephone communication he had during the three-day storm was with the Superintendent of Wind Cave Park.

Feeding of elk on the Winter Elk Refuge terminated April 20, after continuous feeding for nearly four months. Weather conditions in the Jackson Hole country continued unfavorable up to April 22, but, notwithstanding the unusually severe winter weather, elk on the Refuge came through with only a loss of about 6 per cent of those fed, the weak calves being the principal sufferers. It is known, however, that feed on the open range was extremely limited and, with the deep snow, it is feared that losses among the elk out in the hills will be serious. Had it not been for the emergency hay purchase made by the Bureau of Biological Survey, it is estimated that 75 per cent of the elk which came to the feeding ground would have perished.

MIGRATORY BIRD TREATY AND LACEY ACTS

A decision that settles the question of the constitutionality of the Migratory-Bird Treaty Act and the right of the Federal Government to afford protection to migratory birds was rendered by the Supreme Court of the United States on April 19, 1920. The Court upheld the constitutionality of the law in the case of the State of Missouri against Ray P. Holland, U. S. Game Warden, a proceeding to restrain Federal game wardens from attempting to enforce the Act and Regulations in that State. The last paragraph of the opinion is as follows:

"Here a national interest of very nearly the first magnitude is involved. It can be protected only by national action in concert with that of another power. The subject matter is only transitorily within the State and has no permanent habitat therein. But for the treaty and the statute there soon might be no birds for any powers to deal with. We see nothing in the Constitution that compels the Government to sit by while a food supply is cut off and the protectors of our forests and our crops are destroyed. It is not sufficient to rely upon the States. The reliance is vain, and were it otherwise, the question is whether the United States if forbidden to act. We are of opinion that the treaty and statute must be upheld.

Chief Warden Lawyer attended a conference of State game officials on April 28, at Albany, N. Y.

Warden Irving C. Emmett, of Ogden, Utah, arrived in Washington on March 26 to assist in the office work, and during Mr. Lawyer's absence will be in charge of the Division.

On March 30 an order was issued by the Secretary of Agriculture allowing the killing of robins in New York under special permit when found to be destroying cherries; and on April 29, similar orders were issued permitting state game officials to kill or trap certain birds in Michigan, found to be injurious to valuable fish-life; and in New Hampshire, found to be injurious to valuable fish-life in streams closed to fishing.

According to a report received on April 1, from Deputy Warden Wilbur F. Smith, of South Norwalk, Conn., a flock of approximately 300 Canada geese had been remaining at Greenwich Cove, Greenwich, Conn., for weeks. They were undistrubed and consequently were becoming very tame.

Two violators apprehended by Warden Hilliard, charged with killing geese, were arraigned in the Federal court in New Jersey. One was fined $100, and the other $20.

Two gunners were arrested by Warden C. P. S. Smith in Cecil County, Md, charged with hunting snipe. They were arraigned in Federal court and fined respectively $25 and costs and $1 and costs.

Two violators arrested by Warden B. E. Smith, of Maine, for killing coots and ducks, were arraigned in Federal court and each fined $50.

Six convictions were secured by Warden Visart in Arkansas, and fines ranging from $5 to $25 were imposed for illegal traffic in wild ducks; two by Warden Knights in Maryland, in which minor fines were imposed for selling woodcock; and one by Warden Shuppe in Texas, for the possession of a mounted swan, fine $10.

Three parties arrested in Rhode Island by Warden Stadlmeir for offering aigrettes for sale were fined $20 each; the plumes were confiscated.

Two cases of more than passing interest were reported by Warden Pacetti from Florida, involving the killing and offering for sale of the skins of twenty snowy herons and five American egrets, all of which were seized by the warden. The violators were arrested and being unable to furnish bond were re - manded to jail.

Eight cases were reported during the month by Warden John E. Perry involving killing of birds out of season. Warden Bloxsom reported two cases from Virginia and one from Maryland, involving the killing of ducks. Warden Linebaugh reported a violation involving the killing and sale of ducks. Warden Knights reported one case from Maryland involving the killing of ducks, and one from Delaware in connection with the killing of snipe; in the latter case he was assisted by Deputy Warden A. F. Dillahay. Warden Chisolm on a visit to Georgia succeeded in securing evidence of two violations involving the offering of aigrettes for sale.

Wardens Farnham and Hilliard reported a case in which parties are charged with hunting and killing geese from an airplane. The violators were arrested and have been bound over to await action of the Federal court.

Deputy Warden Michael Concannon, operating in the State of Kansas, apprehended five violators hunting ducks out of season.

Warden Shaver of Minneapolis, Minn., who has been assigned to duty in Iowa for several weeks, contracted pneumonia while engaged on field work and has been confined in a hospital at Burlington, Iowa. His condition is improved but he will not be able to leave the hospital for several weeks.

Prior to taking a well-earned vacation at his old home in northern New York, Mr. Lawyer entertained the men of his Division at his home, where they passed a very enjoyable evening, April 17.

Miss Mable C. Alexander was transferred from the Office of the Solicitor on April 12, to assist in scientific and propagating permits work.

The appointment of Mr. Gilbert R. Rossignol, of Savannah, Ga., as U. S. Game Warden was terminated effective April 12.

During the month of April the following U. S. Deputy Game Wardens were appointed:

Edwin N. Dixon, Galesville, (P. O. Galloways), Md.
Walter G. Klinefelter, So. Greeley St., Stillwater, Minn.
Robert D. Camp, Brownsville, Fla.

The appointments of the following U. S. Deputy Game Wardens were terminated during the month:

Edward H. Clark, 1598 E. 11th St., N. Portland, Oreg.
Fred E. Mockett, Lincoln, Nebr.
Geo. B. Rison, Jr., 1017 Spruce St., Little Rock, Ark.
James M. Thomas, North Bend, Oreg.

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THE SURVEY

Monthly News Bulletin of the Bureau of Biological Survey
United States Department of Agriculture

Vol.1 Washington, D. C., June, 1920 No.6

THE SURVEY is issued for office and field men of the Biological Survey under authorization of the Chief of Bureau as a medium for furnishing information regarding the work of the Bureau, movements of the staff, changes in assignments, and news and personal items of importance, with a view to increasing the interest of the personnel in the work of the Bureau as a whole and in each one's individual work as related to it. It is intended primarily for employees and is not in any sense a publication.

GENERAL NOTES

The Chief of Bureau, Mr. Edward William Nelson, was honored by the George Washington University at its 99th Annual Commencement, May 31, in having conferred upon him the honorary degree of Doctor of Science. Other eminent men receiving honorary doctorate degrees at the same time were General Pershing , Attorney General Palmer, Senator Harding, Senator Lenroot, and the British Ambassador, Sir Auckland Geddes.

The Agricultural appropriation bill for the fiscal year 1921 was approved by the President on May 31, and includes the following general amounts for the work of the Biological Survey: Statutory salaries and administrative expenses, $79,610; for Biological Investigations, $24,400; for Economic Investigations, including work on the food habits of birds and mammals, destruction of predatory animals and rodents, suppression of rabies in predatory animals, and investigations regarding fur-bearing animals, $456,040; for Maintenance of Mammal and Bird Reservations, including transportation of game for national reservations, $44,735; for enforcing the Migratory-Bird Treaty and Lacey Acts, including necessary investigations, $142,500; for investigations for the improvement of the reindeer industry in Alaska and the protection of land fur-bearing animals in that Territory, $40,000; making a total for the work of the Bureau of $787,285.

At the May meeting of the Scientific Staff, held at the home of Mr. A. H. Howell, of Biological Investigations, on May 19, the following matters were discussed: Visit to the Winter Elk Refuge, Jackson, Wyoming, Major E. A. Goldman; the second annual meeting of the American Society of Mammalogists, Dr. Walter P. Taylor; trip to South America to investigate winter grounds of wild fowl, Dr. Alexander Wetmore; present states of treaties with Middle and South American countries, Dr. Nelson. Mr. Lisle Morrison, of Economic Investigations has invited the staff to hold its June meeting at his home in Takoma Park, on Wednesday evening, June 16.

Memorial Day was observed by many of the staff of the Bureau in decorating graves of ornithologists buried in cemeteries in and about Washington. Among these are Spencer F. Baird and his daughter Lucy Hunter Baird, Theodore N. Gill, Jerome H. Kidder, Pierre Louis Jouy, John Rodgers, and Joseph Henry, in Oak Hill Cemetery; John K. Townsend, in Congressional Cemetery; and Elliott Coues, Charles E. Bendire, and William H. Hammond, in Arlington.

Members of the Staff who attended, report a most successful annual meeting of the American Society of Mammalogists, in New York City, May 3-5. The organization, in which Survey men have been active from the beginning, starts its second year with a charter membership list of 440. Among the papers presented were the following: Modern Methods of Mammalogical Field Work, Mr. Bailey; Notes on the Mammals of Mount Rainier, Washington, Dr. Taylor; Blue-fox Farming and the Maintenance of the Fur Supply, Dr. Dearborn; The Fate of the European Bison, Dr. Palmer; Saving the Yellowstone Elk Herd, Dr. Nelson. Members of the staff selected to office in the organization were Dr. Nelson, first vice president; Dr. Jackson, corresponding secretary; Dr. Palmer, chairman of Bibliography Committee; Mr. Preble and Dr. Palmer, on Board of Directors. Dr. Merriam, first chief of the Bureau, was reelected president.

Bureau contributions in May to the Department's series of publications were:

Service and Regulatory Announcement (B.S. 32). Importation of Quail from Northeastern Mexico - Notice Regarding Permits. P.1, May 10, 1920.

Farmers' Bulletin 1090. Rabbit Raising, by Ned Dearborn, Assistant Biologist. Pp. 36, figs. 22, March (May), 1920.

Miss Blanche M. Yates, of the Editorial Section, and Miss Blanche L. Chadwell, of Economic Investigations, have been "shut-ins" for more than a month. It is hoped they may soon be well enough to be with us at the office again.

Chester P. McCubbin resigned as assistant in mails and files, on May 6, and is now employed as junior wireless operator on a merchant steamer plying between Norfolk and Italian ports. He qualified for the position during his spare time while with the Bureau.

BIOLOGICAL INVESTIGATIONS

Dr. Alexander Wetmore sailed May 29 from New York for Buenos Aires, Argentina, to devote 8 or 10 months to the investigation of the status of certain of our migratory birds that pass part of the year in Argentina, Brazil, Paraguay, and other South American countries. Extensive field observations will be made to determine local conditions affecting the birds. Results of his work are looked forward to with great interest as having an important bearing on the administration of the Migratory Bird Treaty Act.

Satisfactory progress is reported by the field party consisting of Messrs Francis Harper, J. A. Loring, and Herbert Laing, which left Edmonton, Alberta, early in April for the Athabaska Lake Region. Writing from McMurray, Alberta, May 6, Mr. Harper reports ducks and geese beginning to pass over in considerable numbers.

Mr. A. J. Poole, on temporary leave of absence from the U. S. National Museum, has gone to Wisconsin, where he will be employed again this field season by the Wisconsin Geological and Natural History Survey. This State organization is cooperating with the Bureau in the general survey of the State, the work being in charge of Dr. H. H. T. Jackson.

Two new clerks have been assigned to the office force: Miss Emma M. Charters, who is carding mammal notes and records; and Miss Ruth Richards, who will assemble material of similar character to be added to bird files.

Alvin Bomgardner has resigned as messenger and has been replaced by E. H. Villiers.

ECONOMIC INVESTIGATIONS

During the current season, the Bureau arranged for the benefit of its cooperators to place orders for the purchase of materials needed in the preparation of poison baits, and as a result has effected a saving to them of over $20,000.

Dr. Bell is still on his western trip and with Mr. Piper spent a considerable portion of the month of May in Utah.

A very effective piece of work was recently completed by Mr. D. A. Gilchrist, leader in rodent extermination work in the Arizona District, in clearing up a range used by the Chiricahua Cattle Company, 12 miles long and 4 miles wide. This company reports that there were no live prairie dogs left at the conclusion of the operation. The value of this piece of work to the cattle company means the addition of about 50 per cent in the available grass for the cattle carried on the range.

A rancher who handles a large number of sheep in Socorro County, New Mexico, reports that as the result of the work of our predatory animal man in that county, he has lost only two lambs during the present lambing season, where in previous years his losses ran into the hundreds.

Another piece of work is reported from the Fremont National Forest in southern Oregon in the wholesale extermination of ground squirrels. This was obtained through active cooperation between the Forest Service and the Bureau.

An unusually large number of skunks have been born at the Experimental Fur Farm this spring, all splendidly colored and thriving. There has also been an increase among the raccoons there. Cats are being kept on the Farm under the same conditions as more valuable fur animals, and are being tested with various rations for the purpose of securing data on nutrition of carnivores, one of the most difficult questions with which the fur farmer has to deal.

The Division of Economic Investigations has available for distribution a directory of all persons in the United States engaged in breeding fur-bearing animals in so far as such persons have been reported to the Bureau.

Mr. Charles C. Sperry, of the section of Economic Ornithology, is in Massachusetts investigating the relations of birds to an introduced insect pest, the European corn borer.

Dr. Ned Dearborn's resignation has been tendered and accepted to take effect at the end of June. He is leaving to become manager of a fox farm owned by the Ontario Stock Farm Company, of Watertown, New York. The fox ranch will be a part of a live stock project including, besides foxes, sheep, cattle, and horses. The farm is located on Galloup Island, near the eastern end of Lake Ontario.

Mr. Duane Stonier, Assistant Biologist, has tendered his resignation, which has been accepted effective July 15, 1920. He will enter college in California with a view to studying medicine. Mr. Harry M. Reid, Predatory Animal Inspector, has also resigned, and his resignation has been accepted effective June 30, 1920.

MAMMAL AND BIRD RESERVATIONS

Two of the three eligibles certified to the Bureau by the Civil Service Commission for the position of Reservation Warden, resulting from the examination held April 7, have been appointed, effective June 1. Mr. F. W. Triska has been assigned to temporary duty at the Sullys Hills Game Preserve, North Dakota; and Mr. Bryan Nowlin at the Winter Elk Refuge, Wyoming.

Inspector Fred M. Dille is now making his headquarters at the Sullys Hill Game Preserve looking after improvements to be made this summer. Contracts have been made for the purchase of ornamental fencing and of gates for the main entrance. A pair of Canada geese, two pairs of domesticated mallard ducks, and two pairs of wood ducks will soon be placed on the lake within the preserve, primarily for exhibition purposes.

Under the Agricultural appropriation act for the new fiscal year, this Division will on July 1 take over a line of work which in the past has been carried on by the Bureau of Fisheries, Department of Commerce. This is the enforcement of Section 1956 of the Revised Statutes, as amended, so far as it relates to the protection of land fur-bearing animals in Alaska, as well as to the leasing of certain islands in Alaska for the propagation of fur-bearing animals. The Chief of Bureau appointed Dr. Dearborn, Mr. Preble, and Capt. Bancroft as a committee to revise the regulations for enforcing the laws for the protection of land fur-bearing animals in Alaska. The committee is now preparing tentative regulations, subject to revision after Dr. Nelson's return from Alaska in the autumn.

MIGRATORY BIRD TREATY AND LACEY ACTS

Acting Chief Game Warden Emmett spent the last few days of May in and about New York City, arranging for water equipment for use of game wardens in patrol work for securing evidence of violations of the treaty act.

Deputy Warden Isaac T. Leach, Colonial Beach, Va., has been assigned as caretaker of the Bureau's cabin-cruiser "Curlew," operating in the waters of the Potomac River and Chesapeake Bay.

In the Federal court at San Antonio, Tex., recently, fines of $10 and $20 were imposed on two violators charged with killing ducks out of season. Arrests in these cases were made by Warden Shupee.

One violator, arrested by Deputy Warden L. C. Hawley, of Sioux Falls, S. Dak., and arraigned in Federal court on the charge of purchasing and reselling wild ducks and serving same to patrons in his restaurant, was fined $200. Another violator, apprehended by Warden Kelsey and arraigned in the same court, was fined $25 on the charge of killing ducks out of season.

For possessing and offering for sale the plumes of herons a violator was arraigned in the Federal court in Florida and fined $200. Two Indians arraigned in the same court on the charge of killing herons were each fined $10. The arrests were made by Warden Pacetti.

A violator arraigned in the Federal court at Baltimore, on the charge of trapping, transporting, and selling wild ducks, was fined $250 and costs; one arraigned in Federal court at Boston, Mass., charged with the possession of ducks and grebes, was fined $25; and one arraigned in the Federal court for the Southern District of Mississippi, charged with killing a gallinule, was fined $5 and costs. The arrests were made, respectively, by Wardens C. P. S. Smith, Stadlmeir, and Perry.

Four violators arraigned in Federal court at Paducah, Ky., charged with killing ducks in the closed season, were fined $25 each; two violators arraigned in the Federal court at Owensboro, Ky., charged with purchase and sale of wild ducks, were each fined $25; and one violator arraigned in the same court, charged with killing bull-bats, was fined $10 and costs. Wardens Merrill and Linebaugh made the arrests. Another violator, arrested by Deputy Warden R. N. Malkin, paid a fine of $75, on the charge of killing jacksnipe in close season.

Four violators arraigned in the Federal court at Springfield, Ill., charged with the killing of wood ducks, were each fined $50; and four violators, charged with purchasing wild ducks were arraigned in the Federal court for the Western District of Arkansas, two being fined $10 and the others $5 each. Two violators arraigned in the Federal court for the Eastern District of Arkansas, charged with shooting at grebes with a target rifle, were found guilty after trial by jury and each fined $5. Arrests were made by Wardens Merrill and Visart.

Cases reported by wardens during the month are as follows: Knights, one case in Maryland involving the possession of two flickers; A. M. Antwine, Deputy, Denver, Colo., one, shipment from Texas of a swan; Shaver, 2, possession of wild ducks; Bloxsom, one, killing of 4 geese, and 2 involving killing of shorebirds; Ransom and Steele, 10 cases, possession of birds in cold storage, and 8 cases, possession of freshly killed birds; Barmeier, 4, killing of geese; Mushbach, one, hunting of ducks from a motor boat; Shupee, 2, killing and

and possession of swan, and one, killing of doves; Visart, one, killing and possession of swan; by Deputy Warden Wilbur Smith, of Bridgeport, Conn., one, killing and shipment of wood ducks.

Mr. William S. Bollerman, 815 Sprude St., Easton, Pa., was appointed Deputy Game Warden, effective May 1, 1920.

Game Warden, Miles S. B. Knights resigned the position effective May 22. He will return to New York to resume his former duties as State Game Protector.

The appointment of Capt. Edwin N. Dixon, of Galesville, Md., as Deputy Game Warden, was terminated May 15,

Miss Helen Miner, stenographer in this division, was given the degree of Bachelor of Arts at the Commencement of the George Washington University, May 31.

The following corrections should be made in the May SURVEY: Warden Shaver's address (p.6) should be St. Paul, instead of Minneapolis, Minn; Deputy Warden Robert D. Camp's address (p.6), should be Brownsville, Texas, instead of Florida.

THE SURVEY

Monthly News Bulletin of the Bureau of Biological Survey
United States Department of Agriculture

Vol. 1. Washington, D. C. July, 1920 No. 7

THE SURVEY is issued for office and field men of the Biological Survey under authorization of the Chief of Bureau as a medium for furnishing information regarding the work of the Bureau, movements of the staff, changes in assignments, and news and personal items of importance, with a view to increasing the interest of the personnel in the work of the Bureau as a whole and in each one's individual work as related to it. It is intended primarily for employees and is not in any sense a publication.

GENERAL NOTES

Dr. Nelson started on an official trip to Alaska, the last week in June, to be gone two or three months. While in Alaska he will investigate the activities of the Bureau in that Territory, especially the new work to be undertaken beginning July 1, in connection with reindeer and the protection of land fur-bearing animals. Just prior to his departure he attended the commencement exercises at Yale University, where he had conferred upon him the degree of Master of Arts.

Dr. Seymour Hadwen, coming to the Bureau from the office of Chief Pathologist and Director of the Biological Laboratory, Health of Animals Branch, Canadian Department of Agriculture, had been appointed Chief Veterinarian, to carry on investigations of the diseases of reindeer in Alaska; with Dr. George Field Root, formerly Veterinarian in the Alaska Reindeer Service, Bureau of Education, as his assistant.

Mr. Lawrence L. Palmer, formerly Grazing Examiner in the Forest Service, has been appointed Assistant in Charge of Grazing Investigations, with Mr. Herbert W. Johnston, also a former Grazing Examiner in the Forest Service, as his assistant. They will investigate grazing areas in Alaska best suited to reindeer, and methods for improving grazing conditions.

Mr. Olaus J. Murie, formerly Custodian of Mammals, and collector for the Carnegie Museum, has been appointed Assistant Biologist and Fur Warden and will travel in various parts of Alaska in connection with the reindeer work.

Mr. Donald H. Stevenson, a former Predatory Animal Hunter of this Bureau, and later a Forest Ranger in the Forest Service, has been appointed Reservation and Fur Warden for work in the Aleutian group of islands, Alaska.

Mr. W. F. Bancroft, commencing July 1, will handle work in the Washington office relating to the Alaska land fur-bearing animals, including the leasing of islands for fur farming; and during the absence of Dr. Nelson will attend to correspondence relating to the reindeer work in Alaska.

The last evening meeting of the Scientific Staff for the season, was held on June 16, 1920, at the home of Mr. Lisle Morrison, of Economic Investigations, in Takoma Park. A hot day followed by an evening of thunder showers aided in making an informal program appropriate. The chief discussion was led by Mr. Goldman, on a proposed trip to the Sitgreaves National Forest, Arizona, in connection with the elk herds there; by Dr. Fisher, on life-history habits, and shooting and trapping members of the Felidae; and by Mr. Lincoln, on interesting experiences in studying the habits, intelligence, and behavior of reptilians.

Mrs. A. B. Morrison, who has held the position of Administrative Assistand and has been connected with the Bureau for over thirty years, has recently been promoted to Assistant to the Chief and will hereafter handle some of the more responsible administrative work in order to relieve the Chief and the Assistant Chief of some of their numerous duties.

The only new publicatiom of the Bureau in June was the following:
Service and Regulatory Announcement, B. S. 33, Regulations for the Protection of Land Fur-Bearing Animals in Alaska. Pp. 4, with map of districts, July 1, 1920; released, June 22, 1920.

The close of the fiscal year is an appropriate time to tell in a general way of the work of the Bureau Accounting Office, of which Mr. Herbert S. Ward, Administrative Assistant, is in charge. By a number of changes in m methods, the work has been greatly simplified during the year, both as regards its operation in Washington, and the nature and number of records and reports required of field employees. A series of new forms replaces certain of the more cumbersome or complex formerly used and not only simplifies the work but helps guard against error in allotments and, in the case of change in personnel, the dates of appointment or separation. The weekly average of unpaid vouchers on hand has been reduced from 230 to 80. The average number of vouchers passed for payment each month has been 570, and the total for the year will be about 6,850, more than 8 per cent in excess of the number of last year. The total disbursement will approximate $865,000, or about $150,000 more than last year.

BIOLOGICAL INVESTIGATIONS

Mr. E. A. Goldman left Washington on June 26 for Arizona, where he will investigate the condition of the herd of elk on the Sitgreaves National Forest, the progeny of animals introduced there a few years ago. He expects to be away about a month.

Dr. W. P. Taylor is resuming field work for the season in the State of Washington, having left for the west on June 24. He has been assigned headquarters at La Jolla, Calif., and is expected to conduct work from that station during the next year.

Dr. H. H. T. Jackson left on June 17 to take up field work for the season in Wisconsin, continuing the biological survey of that State which has been carried on for some years past, in cooperation with the Wisconsin Geological and Natural History Survey.

Mr. Francis Harper, investigating the breeding grounds of waterfowl on the Athabaska Delta, in northern Alberta, Canada, one of the most notable resorts for ducks and geese in North America, writing in early June, reports that conditions are somewhat backward there owing to the continuance of high water due to the late opening of spring. The party is accumulating many interesting notes, and the birds already collected include several species new to the region.

Miss Viola M. Schantz, now Mrs. E. Emerson Snyder, of the Museum Annex, who has been absent on leave for the past few weeks, returned to her desk on June 23.

ECONOMIC INVESTIGATIONS

Dr. W. B. Bell reports satisfactory results from his trip throughout the West. At the end of June he was on his way east, having reached North Dakota. He expects to visit several other points before his return, reaching Washington about the middle of July.

Mr. Vernon Bailey, Chief Field Naturalist, has been given a special assignment in the Western States to make studies of the life habits of injurious animals with special reference to their food habits, in order to furnish this division definite and detailed information for use in determining most advantageous methods for their control and eradication. He left Washington July 1.

Dr. Ned Dearborn, who for several years has been in charge of the project on fur farming, left the service June 30, to take up his new work in New York State. His departure is much regretted by the Bureau and he carries with him the best wishes of all for his future welfare.

Mr. E. F. Fribley, one of the field assistants in rodent work in the Arizona district, leaves the service on July 5 to accept a position in commercial life.

Mr. A. B. Plummer, rodent leader in the Wyoming-Nebraska district, resigned effective June 30.

Mr. Alex Rasmussen has been appointed Predatory Animal Inspector and assigned to duty in the Nevada district under Mr. E. R. Sans.

Mr. F. V. D. Reed has been appointed Predatory Animal Inspector and assigned to duty in the Oregon district under Mr. Stanley J. Jewett.

Economic Ornithology

Mr. Franklin P. Metcalf left for Missouri on June 18, where he will make a botanical survey of the various lakes for the purpose of determining what supplies of wild duck foods are present. The investigation will extend later to the lake regions of Nebraska, and North and South Dakota.

An index to the Stejneger and Barbour Check List of North American Amphibians and Reptiles prepared by Mr. Remington Kellogg of this section, has been manifolded and a limited number of copies are available for distribution to holders of copies of the volume. The addition of an index to this valuable book will greatly enhance its value to the average worker.

Mr. L. O. Jackson has resigned his position as scientific preparator to take effect July 15. His immediate plans involve a vacation in the mountains of Colorado. Mention should have been made in last month's SURVEY that Mr. Jackson was among the number receiving degrees at the 99th Commencement of the George Washington University - his degree being Bachelor of Arts.

Mr. Warren C. Craven, preparator, resigned June 15.

Mr. Leo J. Dunworth has resigned his position as stenographer and typewriter, effective July 15, in order to engage in commercial work.

MAMMAL AND BIRD RESERVATIONS

Mr. Herman F. Stone, formerly in business on Long Island, N. Y., has been appointed Assistant in Charge of Mammal and Bird Reservations, and a assumed his duties on July 1. Mr. W. F. Bancroft, who has been in charge of this work since Dr. Field's resignation, will have charge of the land fur-bearing animal work in Alaska and will assist Mr. Stone in the Reservation work, in addition to looking after Lacey Act work under the Migratory Bird Division.

The Niobrara (Nebraska) Game Preserve has for some time past, needed more enclosed pasture for the increasing buffalo and elk herds there, and during the past month contracts were let for wire, posts, and for digging post holes for a new enclosure. When completed, this will represent a cost of over $11,000, and will be adequate for the needs for many years.

Mr. T. J. Ashe, who since May 11, 1910, has been Warden of the Key West Bird Reservation, Florida, resigned on June 15 on account of failing health. He has also looked after the Tortugas Bird Reservation during the nesting season of the birds.

MIGRATORY BIRD TREATY AND LACEY ACTS

Chief Warden George A. Lawyer returned to his desk on June 21 after having spent about seven weeks vacation in northern New York.

On June 7, 1920 the petition for rehearing filed by the Attorney General of Missouri in the case of State of Missouri vs. R. P. Holland, U. S. Game Warden, involving the Constitutionality of the Migratory Bird Treaty and the Act to give it effect was denied by the United States Supreme Court.

On June 21 and 22 a largely attended meeting of the Migratory Bird Treaty Advisory Board was held at the Cosmos Club, Washington, D. C., for the purpose of considering certain proposed changes in the Regulations under the Migratory Bird Treaty Act and hearing appeals of sportsmen from various sections of the country.

Six cranes seized by Warden Shupee, in Texas, and released to the Bureau by the violator, were shipped to Washington, D. C., and have been turned over to the National Zoological Park for exhibition purposes.

Acting Chief Warden Irving C. Emmett made several trips to New York City and Norfolk, Va., during the month, to arrange for the purchase of boats for use in patrol work. Four fine launches have been secured, one to be stationed at Norfolk, Va., for the use of Warden Birsch; one for Florida waters, in charge of Warden Pacetti; one for the Illinois River, in charge of Warden Merrill; and the other for use on the Mississippi River, in charge of Warden Charles P. S. Smith, at Davenport, Iowa.

The first conviction under the Migratory Bird Treaty Act for hunting migratory waterfowl from an airplane was secured in the Federal court for the District of South Dakota when a violator charged with hunting by this means was fined $50. The arrest was made by Warden Kelsey. In the same court another case reported by Warden Kelsey resulted in a fine of $5, for killing ducks in excess of the daily bag limit.

Fifteen cases secured by Wardens Pacetti and Whitehead, resulted in fines of from $25 to $100 each, in the Federal court at Tallahassee, Fla., nine in connection with killing doves, four with killing ducks, and two with the sale of aigrettes. Seventeen cases reported by the same Wardens, in the Federal Court at Valdosta, Ga., resulted in fines of $20 each, for killing doves during the close season.

For selling wild ducks a violator was arraigned in the Federal court for the Southern District of Georgia and fined $50; this case was secured by Wardens Pacetti and Knights.

Two violators arraigned in the Federal court for the Eastern District of Arkansas charged with killing ducks in close season were fined $5 and $25 each. Wardens Visart and Riddick reported these cases.

Charged with the possession and shipment of a loon, a violator was arraigned in the Federal court for the Western District of Michigan and fined $100. This case was reported by Wardens Asmuth and Shaver and Deputy Warden Valentine Raeth.

Four cases, involving hunting ducks in close season, resulted in fines of $10 each in the Federal court for the District of Nebraska, and another, in a fine of $25 for a similar violation. These cases were reported by Warden Holmes.

Two violators arrested by Deputy Warden Warren M. Sessler, and charged with killing ducks during close season, were arraigned in the Federal court for the Southern District of Illinois and each fined $25 and costs.

For hunting migratory waterfowl from a motorboat, two violators were fined $10 each when arraigned in Federal court at Memphis, Tennessee. This case was reported by Deputy Warden Yerger. Two other violators, arrested by Warden Barmeier and charged with similar offense, were arraigned in the Federal courts for the Southern District of Illinois and the Eastern District of Missouri, and fined $25 each.

A case reported by Deputy Warden Malkin, resulted in a fine of $75, in the Federal Court in Kentucky, the charge being killing and possessing jacksnipe in the close season.

During the month Warden Charlton, of Ohio, reported four cases, two involving the possession of ducks in cold storage during close season, and two for killing migratory waterfowl; Warden Walker, of Arizona, reported four cases involving the killing of doves, Warden Tonkin secured seven cases in Idaho involving the killing of migratory waterfowl during close season; and Deputy Warden Beckwith, of Iowa, reported one case involving the killing of a night heron.

Dr. T. S. Palmer visited Burlington, Vt., June 23 and delivered an address on the "Practical Value of Game Refuges" before the Sportsmen's Convention held under the auspices of the Vermont Fish and Game League.

Deputy Warden D. M. Cranston, of Green Bay, Wis., reports that he recently visited Hat Island and counted gull eggs in nests there in the number of 1,862, which surpasses the previous record of 1,324 found at that point in 1919.

Deputy Warden Edward Babson, of Gloucester, Mass., reports that eider ducks wintered off the coast of Massachusetts in larger numbers than in any previous winter which he can recall.

Warden Charles P. S. Smith , who has been performing temporary duty in Washington, has been assigned to active field work with headquarters at Davenport, Iowa (Box 559).

Miss Mabel C. Alexander left Washington on June 15 over the Canadian Pacific Railroad to spend thirty days' vacation at her home near Seattle, Wash.

Mr. Frank G. Grimes left Washington June 30 to spend a week's vacation at Ashboro, N. C.

The following appointments have been made to the position of U. S. Deputy Game Warden:

Fred W. Hutchinson, 426 Union League Bldg., Los Angeles, Calif.
Wm. D. Gaskill, Ocracoke, N. C.
C. L. Bouquet, 203 Devine St., San Antonio, Texas.
Henry Kammerer, Delawanna, N. J.
Otto Rohn, 206 Glen Ave., Ann Arbor, Mich.

Bryant A. Boone, Clinton, Ky.
F. B. Ingouf, 1516 Highland Ave., Shreveport, La.
Ray J. Kenney, 6128 Vernon Ave., Chicago, Ill.
Wm. L. Waterhouse, 41 Church St., Lowville, N. Y.

The appointments of the following Deputy Wardens have been terminated:

Chester C. Addison, Marco, Fla.
David L. Hammel, Fort Myers, Fla.
W. E. Phillips, Alva, Fla.
Charles H. Swick, Fort Myers, Fla.

THE SURVEY

Monthly News Bulletin of the Bureau of Biological Survey
United States Department of Agriculture

Vol. 1. Washington, D. C. August, 1920 No. 8

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GENERAL NOTES

The assignment of Dr. Walter P. Taylor to field duty made necessary a reorganization of the Committee on THE SURVEY, which as reconstituted is as follows:

Dr. W. B. Bell, chairman, representing Economic Investigations.
Mr. W. C. Henderson, representing the Bureau as a whole.
Mr. W. Roy Dillon, Migratory-Bird Treaty and Lacey Acts.
Mr. Edward A. Preble, Biological Investigations.
Dr. T. S. Palmer, Game Preservation.
Mr. E. R. Kalmbach, Economic Ornithology.
Mr. Wm. H. Cheesman, Editor.

At the first meeting of the reorganized committee, no change was made in the general policy, as given in brief in the opening paragraph, above; but it was decided that beginning with the August issue THE SURVEY should be sent to all United States Deputy Game Wardens, thus making it reach all employees under appointment. It will not be possible to supply all with earlier numbers.

Dr. Nelson has cabled his arrival at St. Michaels, Alaska, on July 23. Reported ice floes delayed his departure from Seattle until July 13, and because of storms landing was made at St. Michaels instead of Nome, as planned.

Assistant Chief Henderson spent a few days at the end of July on a business trip to the Experimental Fur Farm, at Keeseville, N. Y. He was accompanied by Dr. Bell, of Economic Investigations.

The Biological Survey is again represented with material in the Departmental exhibits on various fair circuits. Most of these circuits include eastern cities but they reach the area of the Bureau's activities in the West at Salt Lake City, Utah; Pueblo, Colo.; Douglas, Wyo.; Waco, Tex.; and Oklahoma City, Okla. At these points it is planned to have representatives of the Bureau who are located at or near the cities of exposition make additional exhibits devoted to local problems. The same scheme is contemplated for certain points farther west in conjunction with exhibits of the Forest Service and Weather Bureau.

On this year's exhibits are cases displaying plumes of birds of paradise, and the crests of the beautiful goura, or crowned, pigeons, the importation of which for commercial purposes is forbidden. There are also displays of the "aigrettes" of the American egret and snowy heron. A double case shows on one side, a number of our common beneficial birds, and on the other, some with destructive tendencies. Labels describe the economic status of these birds and map their distribution. Another double case shows a number of destructive native rodents, including the prairie dog, pocket gopher, and several ground squirrels, and a group exhibit portrays the destructive habits of the brown rat. A series of eight panels of enlarged colored photographs fully labeled are devoted to the pocket gopher, Belgian hare, brown rat, Townsend mole, predatory animals, prairie dog, Richardson ground squirrel, and jack rabbits. There is also a habitat group of the prairie dog to go on one of the more westerly circuits, and a model of pocket gopher excavation.

The first of these exhibits will leave Washington on August 7, and some will remain on the road well into November. Mr. E. R. Kalmbach, of Economic Ornithology, is the Bureau's representative on the Departmental Committee on Exhibits, which has planned and completed the various cases, panels, and other material. He succeeds Dr. W. P. Taylor in this work.

Department publications relating to activities in which the Bureau is interested, were as follows:

Poster 39 (Biological Survey). Open Seasons for Game, 1920, by George A. Lawyer, Chief U. S. Game Warden, and Frank L. Earnshaw, Assistant, Interstate Commerce in Game. Date of issue, July 8, 1920.

Department Circular 102 (Office of the Solicitor). Decision of the Supreme Court of the United States sustaining the Constitutionality of the Migratory Bird Treaty and Act of Congress to Carry it into Effect. Text of decision. Pp. 4, June 10, 1920.

The annual game law bulletin, Farmers' Bulletin 1138, is now ready for issue - earlier this year than usual, because of the small number of legislative sessions. Copies may be had on application.

BIOLOGICAL INVESTIGATIONS

Mr. E. A. Goldman returned to Washington about mid-July after investigating the condition of introduced elk on the Sitgreaves National Forest, Arizona. A short stop was made at Avery Island, Louisiana, on the way back.

Mr. Vernon Bailey, after completing certain work in North Dakota, has made a short stop in Idaho and will shortly take up the study of the life habits of injurious animals in eastern Oregon.

Dr. H. H. T. Jackson is continuing field work in the southwestern part of Wisconsin. He reports fine weather, following an extraordinarily wet spell prevailing early in July, but rather poor country for collecting.

Dr. W. P. Taylor and party, including Mr. G. G. Cantwell, are crossing the Cascade Mountains of northwestern Washington by pack train on the first lap of a traverse designed to explore biologically the section lying immediately south of the British Columbia boundary.

Mr. Francis Harper, who is investigating the breeding grounds of waterfowl on the Athabaska Delta, Alberta, assisted by Messrs. J. Alden Loring and H. M. Laing, reports having made many interesting observations on the breeding species, as well as on northern migrants, notably certain arctic-breeding sandpipers. Owing to the late spring these birds, having reached a point within easy reach of their summer homes, lingered in this favored locality somewhat later than usual, waiting for summer conditions in the Arctic to become established.

In the Biological Survey Mammal Hall in the U. S. National Museum, in a room at one end specially set off for that purpose, a system of storing the tanned skins of the larger mammals has been installed, consisting of a series of metal racks supporting iron rods, on which the skins are suspended from hooks. Aisles give access to each individual rod, on which the skins of each species are arranged geographically, thus affording ready reference to any given specimen. Several thousand skins have already been thus arranged.

ECONOMIC INVESTIGATIONS

Dr. W. B. Bell returned from his western trip on July 15 and reports the organization in the districts visited as in excellent shape, the leaders and their assistants very much encouraged over the progress being made, and an active interest shown by State officials, live-stock organizations, and individuals in our work. Dr. Bell left again on July 29 for the Experimental Fur Farm, at Keeseville, N. Y., and after concluding his work there will proceed to Marquette, Mich., to investigate reported depredations by brush wolves, and ascertain measures needed to be taken.

Inspector Bayer reports the capture of the old wolf in the Splitrock country, Wyoming. This animal has been killing cattle for a number of years and has heretofore succeeded in evading capture, although once she did leave a toe in the trap. This time Mr. Bayer got her, and her misdeeds are ended. The weight of the animal was 85 pounds.

Inspector Ligon reports that Hunter Pickens recently trapped the famous old big-footed wolf on the Diamond Bar Ranch, near Chloride, N. Mex. This means another stock killer gone and a big saving to the live-stock interests of the region.

Mr. E. R. Sans advises that the California courts fined a thief $25 and costs for stealing a coyote and set of traps. A few more convictions and the thieving operations should cease.

Experiments are now being made with regard to the use of special poison methods for rodent eradication. Results thus far reported are decidedly favorable, and the indications point to the development of methods even more successful than those now being used. Funds have been definitely allotted for these special investigations on poison methods and it is believed the Albuquerque laboratory will once more justify our faith in their work.

While on this matter of poison, it may be of interest to note that during the fiscal year ended June 30, 1920, four tons of strychnine were secured for our cooperators. The arrangements were made with the manufacturers, placing the orders directly with them, getting the benefit of the Bureau rates in purchasing, and thus effecting quite a saving to the cooperators.

The squirrel campaign just concluded in the vicinity of Metropolis, Nev., was a decided success. The County Agent and ranchers state that the results obtained were away beyond expectations and that the protection afforded was such that crop returns are better than for the past three years. The benefits from cooperation between private individuals, and State and Federal officials have been fully demonstrated. This campaign was handled by Mr. Ben F. Hankey under the supervision of Mr. E. R. Sans.

It is with extreme regret that the resignation is announced, effective July 31, of Mr. George A. Roosevelt from the rodent leadership in the Montana district. In leaving our service to enter commercial life, Mr. Roosevelt carries with him our best wishes for his success.

Economic Ornithology

On July 5, Mr. C. W. Leister, recently appointed as assistant in economic ornithology, left for New Jersey to resume the investigation started last year of the relation of birds to the Japanese beetle.

Mrs. L. L. Gardiner, recently transferred from the Bureau of Entomology, is making drawings of the diagnostic characters of insects and other organisms commonly found in the stomachs of birds. These drawings, in addition to being directly useful in laboratory studies by the staff, will ultimately be employed in a Manual on the methods of stomach examination of birds.

Mr. C. C. Sperry has returned from Massachusettes, where he has been studying the relations of birds to the European corn-borer.

Dr. L. L. Gardiner is at present in Michigan investigating depredations of birds on small fruits, particularly cherries. This study was begun in Indiana and proceeded north with the ripening season. Dr. Gardiner will soon close his investigations near Traverse City.

Prof. H. F. Wickham, of the University of Iowa, is again assisting in the identification of Coleoptera for the reference collections of the Division. Prof. Wickham will be engaged in this work until about the middle of September.

MAMMAL AND BIRD RESERVATIONS

It is with deep regret that the death is noted of Thomas James Ashe, warden since 1910 of the bird reservations at Key West and Dry Tortugas, Florida. Failing health, due to advancing years, made him feel that he could no longer give the required attention to his position, and he reluctantly resigned on June 15, 1920. Captain Ashe was born in County Kerry, Ireland, in December, 1860, and died suddenly at Key West, July 23, 1920. He leaves three sons and two daughters. Before his service with the Department of Agriculture he had

acted as warden of these reservations for the National Association of Audubon Societies and thus has had charge of the reservations ever since their establishment. One of his associates speaks of him as being "not only a warm-hearted man, but one able and ready at any time to take a fall out of any one who intruded on his rights - making him the best possible man to handle the work on the reservation, for in the earlier days there the majority knew no law and did what suited them best." During his wardenship he rendered important service in breaking up the illegal traffic at Key West in sea-birds and their eggs from the Bahama Islands. Among his reports is an interesting historical account of Bird Key, one of the Dry Tortugas, which was used as a military hospital and prison during the Civil War. As a civil engineer, he laid out the greater part of the City of Key West, and, to quote again one of his associates, "when the Captain made a survey it was final."

By Executive Order of July 1, 1920, a new national bird reservation, number 73 on the list, was created a little above Fort Myers, Florida, on two small islands, in the river from which the reservation takes its name - the Caloosahatchie Bird Reservation.

MIGRATORY BIRD TREATY AND LACEY ACTS

Chief Warden Lawyer addressed a meeting of the United Sportsmen's Association of Pennsylvania, at Hawley, on the evening of July 21. His talk was in the nature of a general resume of the work being done by the Bureau in the enforcement of the Migratory Bird Treaty Act, touching also on plans for future administration of this law.

Mr. Irving C. Emmett, who has been assisting in the office work in Washington, left on July 15 for his official headquarters, Ogden, Utah, to resume duties in his capacity as game warden. Mr. Emmett planned to stop for a couple of days en route in New York City.

Two little brown cranes, seized by Warden Holmes, of Nebraska, and later released by the violator, have been forwarded to Washington and placed in the National Zoological Park. A live avocet, which had been shipped to a taxidermist in Denver for mounting, was seized by Deputy Warden Antwine and placed in one of the aviaries in that city for safe keeping until the case is disposed of.

The following motor boats owned by the Bureau are now available for use in the enforcement of the Migratory Bird Treaty Act and Regulations:

Name of Boat	Location	In Charge of Warden
CURLEW.	Colonial Beach, Va.	Isaac T. Leach (Deputy).
BRANT.	Atlantic City, N. J.	P. K. Hilliard.
SCAUP.	Norfolk, Va.	W. L. Birsch.
SWAN.	Ponce Park, Fla.*	B. J. Pacetti.
TEAL.	Davenport, Iowa. ϕ	Charles P. S. Smith.
MALLARD.	Davenport, Iowa. ϕ	Charles P. S. Smith.
DUCK.	Quincy, Ill.	R. F. Christ (Deputy).
Rowboat equipped with detachable motor.#	Memphis, Tenn.	E. M. Yerger (Deputy)

*At present undergoing repairs in New York City.
ϕTo be assigned to another point later.
Bureau owns detachable motor; Deputy Yerger owns the boat.

Record of Cases Disposed of--Reports Received in July.

Warden	Cases	State	Violation	Fine
Mushbach	2	Montana	Killing and shipping swan	$10 each and costs of $31.41 each
Mushbach and Shaver	2	Montana	Shipment of ducks in close season	$10 each and costs of $42.36 each
Barmeier	1	Kansas	Selling aigrettes	$5
E. L. Walling ϕ	1	Rhode Island	Killing a wood duck	$10
Holland*	1	Iowa	Possessing ducks in close season	$10 and costs
Asmuth	1	Wisconsin	Selling ducks	$25
Birsch and Chisolm	1	Alabama	Selling ducks	$10
Kirwin*	1	Nevada	Possessing ducks in close season	$25 and costs of $13.95
Wilbur Smith*	1	Nebraska	Killing and shipping wood ducks	$10 and costs of $15
Stadlmeir	2	New York	Collecting eggs of migratory birds	$10 each
Bloxsom	6	Delaware	Hunting after sunset	$10 each
Bloxsom and Dillahay*	3	Delaware	Killing ducks in close season	$10 each
Knights and Dillahay*	1	Delaware	Killing snipe in close season	$10 each
Shaver	1	South Dakota	Killing goose in close season	$25
Shaver and Asmuth	1	South Dakota	Killing and shipping ducks in close season	$25
Linebaugh	1	Kentucky	Selling ducks	$50
Holmes and Hiner*	2	Missouri	Hunting ducks in close season	$10 each

ϕ Commissioner of Birds *Deputy

Record of Cases Disposed of--Reports received in July --Continued.

Warden	Cases	State	Violation	Fine
Pacetti	1	Florida	Killing bobolinks	$1
Bloxsom	1	Maryland	Killing geese in close season	$5
Knights	1	Maryland	Killing flickers	$5
Ransom	2	Washington	Hunting ducks after sunset	$25 each
Tonkin	3	Idaho	Hunting geese in close season	$25 each
Tonkin	1	Idaho	Killing ducks in close season	$35
Perry	3	Mississippi	Killing geese in excess of bag limit	$25 each and costs
Perry	2	Mississippi	Killing coots and grebes in close season	$5 each and costs

Cases Reported by Wardens for Prosecution.

Warden	Cases	State	Violation
Barmeier	1	Iowa	Possession of recently killed gull
Bloxsom	7	Virginia	Killing shorebirds
Charlton	1	Ohio	Killing coots in closed season
Britton	1	New Mexico	Killing doves in closed season
Emmett	1	Utah	Sale of ducks
Holmes	1	Nebraska	Killing doves in closed season
Merrill	59	Illinois	Possession of ducks in cold storage after time limit
Mushbach	2	Wyoming	Purchase and possession of swan
Mushbach	3	Wyoming	Hunting from a motorboat

Cases Reported by Wardens for Prosecution--Continued.

Warden	Cases	State	Violation
Steele	1	Oregon	Killing duck in close season
Ransom	1	Montana	Possession of recently killed swan
B. E. Smith	2	Maine	Sale of gull plumage
Walker	3	Arizona	Killing doves in close season
Yerger	1	Tennessee	Killing heron
Whitehead and Pacetti	1	Florida	Possession of skin of American egret

*Deputy

The official headquarters of Warden Birsch have been transferred from Washington, N. C., to Norfolk, Va. Mail should be addressed to him at P. O. box 237.

The following have been appointed to the position of U. S. Deputy Game Warden:

Ulysses S. G. Harding, Gard Island, Mich.
Jesse H. Pittman, Greenville, Ky.
Roy S. Clouthier, Springer, N. Mex.
Samuel J. Embrey, Sr., Stanford, Ky.
D'Arcy E. Snider, c-o Val Verde Hotel, Socorro, N. Mex.
Edward C. Dunning, White Plains, N. Y.
Wiley G. Gibson, 406 Grandview Ave., El Paso, Tex.
Arthur W. Bullock, Shelbyville, Ky.
Henry J. Oberholtzer, Eagle River, Wis.
Walter A. Vanselow, 253 W. 113th St., Chicago, Ill.
Robert B. Lambert, Bay Port, Mich.
Rex L. Hubbard, Chamita, N. Mex.
Charles Watlington, 902 West Roma, Albuquerque, N. Mex.

THE SURVEY

Monthly News Bulletin of the Bureau of Biological Survey
United States Department of Agriculture

Vol. 1. Washington, D. C. September, 1920 No. 9

THE SURVEY is issued for office and field men of the Biological Survey under authorization of the Chief of Bureau as a medium for furnishing information regarding the work of the Bureau, movements of the staff, changes in assignments, and news and personal items of importance, with a view to increasing the interest of the personnel in the work of the Bureau as a whole and in each one's individual work as related to it. It is intended primarily for employees and is not in any sense a publication.

GENERAL NOTES

Dr. Nelson is not expected back from Alaska for several weeks. The last communication from him was from Juneau, Alaska.

Miss Alice M. Winfield, who has been connected with the Department since September 1, 1882, and with the Biological Survey since June 13, 1904, has been retired under the provisions of the Retirement Act, which went into effect on August 20, 1920. Miss Winfield carries with her the best wishes of the members of the Survey, with whom she has been associated for so long a period.

Following are new contributions of the Bureau to the Department's series of publications during August:

Farmers' Bulletin 1138. Game Laws for 1920, by Geo. A. Lawyer, Chief U. S. Game Warden, and Frank L. Earnshaw, Assistant, Interstate Commerce in Game. Illustration on title-page by Louis Agassiz Fuertes. Pp. 84, August 16, 1920.

Service and Regulatory Announcement, B. S. 34. Migratory Bird Treaty Act, and Regulations (including amendments of July 9, 1920). Pp. 12, August 16, 1920.

Mr. Robert E. Sherfy, a clerk in the administrative office, resigned August 23, having accepted a position outside the Government service.

Mr. Robert F. Brown, a clerk in the Accounts Section, recently resigned to accept a position with the Southern Railway Company. The place has been filled by the transfer of Mr. Raymond Johns from the Bureau of Animal Industry.

Mr. Hyman Liebman, of Pennsylvania, has been appointed a clerk in the administrative office.

BIOLOGICAL INVESTIGATIONS

Satisfactory progress is being made in enlisting the aid of volunteer observers in the work of banding migratory birds in various parts of the United States and Canada.

Mr. Vernon Bailey is studying the life habits of injurious rodents in eastern Oregon, being at present located in the Malheur Lake region.

Mr. Francis Harper, with J. Alden Loring and H. M. Laing, is continuing investigations in the Athabaska Delta, northern Alberta. He reports that owing to cool weather, mosquitoes are less abundant than usual, and that the comparative relief from these pests has contributed materially to the comfort and increased the effeciency of the party.

Dr. H. H. T. Jackson is continuing field studies of birds and mammals in Wisconsin.

Dr. W. P. Taylor and Mr. G. G. Cantwell, who are traversing the Cascade Mountains in northwestern Washington by pack train, report a very interesting trip, without noteworthy accidents, and good results in natural history work.

Miss Estelle M. Hughes has resigned, effective August 31, to take up educational work near Rome, Georgia, her home.

ECONOMIC INVESTIGATIONS

The report of operations in the Idaho District for August shows that fourteen hunters worked 332 days with a total kill of 254 true predatory animals. This makes an average per man per month of 20.6 animals.

Dr. A. K. Fisher plans to leave Washington the middle of September for his annual inspection trip. His itinerary will carry him into Colorado, Utah, Nevada, California, and other States of the Southwest. Owing to the limited time at his disposal, he will not be able to visit the Northwestern States this fall.

Dr. W. B. Bell returned early in the month from his trip to the Experimental Fur Farm at Keeseville, N. Y., and to the upper peninsula of Michigan. He reports a very interesting and profitable time at both places. Plans were outlined with Dr. Karl B. Hanson, who is in immediate charge of investigational work on the Fur Farm, covering the various lines of work that would be undertaken. Many important problems relative to diet and disease of fur-bearing animals require solution. Good progress is being made by Dr. Hanson in carrying this work forward.

Much interesting information was secured by Dr. Bell from fox farmers in the vicinity of Muskegon, Mich. The fox farmers of this vicinity have recently been active in the organization of a national association, with a considerable membership throughout the country, known as "The National Silver Fox Breeders Association of America." The raising of silver and black foxes is a rapidly growing industry in this section where climate and soil both appear to be par-

ticularly favorable. It is reported that there are already more than 2,000 silver and black foxes within a radius of 50 miles of Muskegon having a value of more than $2,000,000.

Dr. Bell found much of interest in the subject of predatory animal work in Michigan and was able to arrange with Mr. John Baird, Game and Fish Commissioner, for the employment of from 15 to 20 men to work under the direction of Mr. J. S. Ligon, Predatory Animal Inspector of New Mexico, who will be assigned to work in this locality for a short time during the latter part of October.

On his way to Michigan Mr. Ligon will give assistance to Mr. E. F. Pope in starting the work in the newly organized Oklahoma-Arkansas district, of which Mr. Pope has been placed in charge. Mr. Ligon will also take with him an experienced hunter from New Mexico for work in southwestern Missouri and will assist the hunter in organizing a cooperative campaign to control the predatory animals that have been destroying live stock in that section.

All men engaged in the rodent and predatory animal work will be interested to learn that the million dollar mark on cooperative funds, provided by States, counties, and other organizations, was passed by a margin of more than $100,000 this year. Reports from the field show an increased number of farmers and stockmen cooperating in the work. A very material increase has been made in the acreage treated for rodent eradication, with large savings reported both of crops and range grasses.

The summary of predatory animals taken during the year shows a very impressive total of wolves, coyotes, mountain lions, bobcats, and bears. There is abundant evidence of increasing and enthusiastic support of this work also on the part of stockmen throughout the West.

Arizona is again to the front. A very successful cooperative campaign against coyotes was put over in the territory between Williams and the Grand Canyon. This area was heavily infested with coyotes, and as there are over 200,000 sheep pastured in this region, the losses have been very heavy. The results obtained during the ten days activity were 340 coyotes killed and counted, despite the fact that the cooperating sheep men were so much delighted with the work that they insisted that the baiting operations be pushed without regard to finding and counting the animals killed. Such campaigns as this clinch the position of the bureau and prove that it has worked out successful methods for predatory animal destruction. The work was under the direction of Mr. Stanley P. Young, and the poison used was the standard strychnine alkaloid one-grain tablet.

Much experimental poison work is being done in the several districts to insure the determination and use of the most effective methods and to adapt methods, as fully as possible, to the various animals involved and the variety of topography, seasonal, and weather conditions that must be met. Many interesting developments along this line have been reported.

Mr. S. E. Piper has completed a trip through Arizona, California, Oregon, Washington, Idaho, Utah, Wyoming, and Colorado. This trip was made with a view to assisting the local men and discussing with them salient features in connection with the organization and conduct of the campaigns against rodents and predatory animals. It also afforded opportunity to inaugurate a considerable series of

experiments to test out some of the recent developments in poison preparations. With the development of a definite project devoted to research and experimentation in the perfecting of poisoning methods it is anticipated that important progress will be made in this field of our work.

Mr. Andrew E. Oman has been appointed, effective September 1, to take charge of the important cooperative campaign against rodent pests in Montana. Mr. Oman was with the Forest Service for several years and has recently been employed as a county agent in Idaho. In this State he has cooperated actively with Mr. W. E. Crouch in ground squirrel eradication work in the counties where he has been located. We are glad to welcome Mr. Oman to our staff and to extend to him our best wishes.

Dr. Glen R. Bach, of Medicine Lake, Mont., has been appointed predatory animal inspector and assigned to work with Mr. Bayer in Wyoming. Dr. Bach is at present very fully occupied as State Veterinarian in an effort to control an outbreak of anthrax among live stock in northeastern Montana. This situation makes it somewhat uncertain as to the exact time he can enter on his new duties as predatory animal inspector for the Bureau.

Miss Edith J. Smith has been transferred from the War Department to assist in the clerical work of this Division.

Economic Ornithology

Mr. E. R. Kalmbach and Dr. Leon L. Gardner are in Oregon engaged in studying the injurious habits of the crow and devising methods of control.

Mr. C. W. Leister has returned from New Jersey, where he investigated the bird enemies of the Japanese beetle. So far thirteen species of birds are known to feed upon the pest.

Mr. F. P. Metcalf is still in Missouri making surveys of the marsh and aquatic plants of resorts of wildfowl.

A project entitled Relations of Reptiles and Amphibians to Agriculture has been afforded by the Secretary of Agriculture. This work will be carried on by Mr. Remington Kellogg.

MAMMAL AND BIRD RESERVATIONS

Mr. H. F. Stone, in charge of Mammal and Birdd Reservations, started on August 23 on a tour of inspection of the big game refuges and bird reservations in the West. It is probable that he will not return to Washington until about November 1. Mr. W. F. Bancroft is acting in charge during his absence, in addition to his other duties connected with the protection of land fur-bearing animals in Alaska.

Warden Hodges, of the National Bison Range, reports that 45 buffalo calves have been born this season and that in one day's ride he has seen eleven young antelope.

MIGRATORY BIRD TREATY AND LACEY ACTS

On August 14 Chief Warden Lawyer went to Greenport, Long Island, N. Y., to make final inspection of the government launch SWAN on which repairs had been made, and to give the boat a trial test preparatory to sending it to Florida waters. Mr. Lawyer made the trip from Greenport to New York City in the boat, accompanied by Warden Pacetti, who is now taking it down the coast to Florida.

Mr. George E. Mushbach, U. S. Game Warden, Billings, Mont., was called to Washington for temporary duty and arrived on August 5.

During the months of July and August, Deputy Warden E. M. Yerger, of Memphis, Tenn., has been exceedingly active in investigating violations consisting of the illegal killing of mourning doves in Tennessee and Mississippi. During August he reported a total of 19 cases, all of which were secured during a three days' assignment to active duty. In the matter of securing cases, he has given the Bureau most hearty and effective cooperation and his work is highly commendable.

Record of Cases Disposed of--Reports received in August.

Warden	Cases	State	Violation	Fine
Shaver .	2	Minnesota.	Hunting ducks after sunset.	$5 each
Shaver.	1	Minnesota.	Selling aigrettes.	$10.
Stirling.	1	Louisiana.	Killing robins.	$10.
Shupee.	1	Texas.	Killing a swan.	$10.
Shupee.	1	Texas.	Killing a duck in close season.	1 hour in custody of marshal.
Hilliard.	5	New Jersey.	Hunting ducks after sunset.	$5 each.
Stadlmeir.	1	New York.	Killing herons.	$15. each.
Charlton.	1	Ohio.	Possessing ducks in storage in close season.	$10.
McCaskill	1	South Carolina.	Collecting eggs of migratory birds.	$30 and costs and 1 week Charleston County jail.
McCaskill	1	South Carolina.	Selling aigrettes.	$10.
Ransom.	2	Washington	Hunting ducks after sunset.	$20 each.
Ransom and Steele	1	Washington	Possessing ducks in storage during close season.	$10.

Cases Reported by Wardens for Prosecution.

Warden	Cases	State	Violation
Bloxsom	2	Virginia,	Killing sandpipers.
Charlton.	1	New York.	Shipment from South Carolina to New York of more than weekly bag limit of ducks.
Holmes.	1	Nebraska.	Capture and sale of little brown cranes.
Stadlmeir.	8	Massachusetts.	Hunting sandpipers.
Mushbach.	4	Montana.	Killing herons.
Linebaugh	1	Tennessee.	Offering aigrettes for sale.
Whitehead.	1	Florida.	Killing heron.
Whitehead and Chisolm	30	Georgia.	Killing doves.
Yerger.	9	Tennessee.	Killing doves.
Yerger.	10	Mississippi.	Killing doves.
Hoffman.	14	Alabama.	Killing doves.
Birsch.	1	Virginia.	Offering aigrettes for sale.
Visart.	1	Oklahoma.	Killing doves.
Linebaugh.	9	Tennessee.	Killing doves.
Linebaugh.	2	Mississippi.	Killing doves.
Merrill.	1	Illinois.	Killing insectivorous birds.

The following have been appointed U. S. Deputy Game Wardens:

Frank W. Aldrich, 1506 E. Washington St., Bloomington, Ill.
Israel I. Alexander, Terminal Hotel, Waco, Tex.
Wallace Libbey, Box 324, Maxwell, N. Mex.
Charles D. F. Merrill, Hinsdale, Ill.
Benjamin J. Napper, 520 First St., Alpena, Mich.
John Randolph, 11 Dexter Ave., Montgomery, Ala.
Fayette E. Smith, Passagrille, Fla.
Fred W. Waldorf, P. O. Box 1171, Thermopolis, Wyo.

The appointments of the following U. S. Deputy Game Wardens have been terminated:

David T. Ferris, Newtown, Ohio.
Webb Toms, 1325 "I" St., San Diego, Calif.
James E. Waterhouse, Charter Oak, Iowa.

THE SURVEY

Monthly News Bulletin of the Bureau of Biological Survey
United States Department of Agriculture

Vol. 1. Washington, D. C., October, 1920 No. 10

THE SURVEY is issued for office and field men of the Biological Survey under authorization of the Chief of Bureau as a medium for furnishing information regarding the work of the Bureau, movements of the staff, changes in assignments, and news and personal items of importance, with a view to increasing the interest of the personnel in the work of the Bureau as a whole and in each one's individual work as related to it. It is intended primarily for employees and is not in any sense a publication.

GENERAL NOTES

Dr. Nelson has advised of his arrival at Seattle on September 28, after his extended tour of Alaska. He will visit several of the offices of the Bureau in the Middle West before returning to Washington.

The Biological Survey frequently receives visits from biologists of other countries who are traveling in the United States. During the past month we have had the pleasure of entertaining three such visitors; Mr. A. B. Alexander, of the Western Australian Museum, Perth; Dr. Alwin Carl Hagnér, Director of the Zoological Gardens, Pretoria, Transvaal, South Africa; and Dr. Charles T. Ramsden, Corresponding Fellow of the American Ornithologists Union, of Guantanamo, Cuba.

Bureau publications during September, were -

Department Circular 131. Directory of Officials and Organizations Concerned with the Protection of Birds and Game, 1920, by Geo. A. Lawyer, Chief United States Game Warden. Pp. 18, released September 4, 1920.

Farmers' Bulletin 1165. Laws Relating to Fur-bearing Animals, 1920, by George A. Lawyer, Chief United States Game Warden, Frank L. Earnshaw, Assistant, Interstate Commerce in Game, and Ned Dearborn, (formerly) Assistant Biologist. Drawing of beaver on title-page by Seaton. Pp. 31, released September 22, 1920.

Farmers' Bulletin 1102. The Crow in Its Relation to Agriculture, by E. R. Kalmbach, Assistant Biologist. Illustration on title-page by author of the bulletin. Pp. 20, figs. 4, including 1 map, released September 24, 1920.

Mr. Edward Muse and Miss Vida E. Musser, both of the Section of Accounts, were married on September 15, 1920. Mr. Muse has been connected with the Bureau since June 17, 1914, except during the period of the war, when he served as first-class yeoman in the Navy, and Mrs. Muse has been with us since last December.

Mr. T. E. Jacoby, of the Administrative Offices, was called to Pennsylvania on September 27, on account of the sudden death of his wife's mother.

BIOLOGICAL INVESTIGATIONS

Mr. E. A. Goldman and Dr. H. C. Oberholser returned September 30 from a ten-day trip to the region of the lower Chesapeake Bay and the Virginia Capes, where they made daily trips in fishing boats to make observations on migrant sea birds.

Dr. W. P. Taylor and Mr. G. G. Cantwell have finished their traverse by pack train across the Cascade Mountains in northwestern Washington. Dr. Taylor is proceeding to La Jolla, Calif., while Mr. Cantwell, after a short visit to his home, will continue field work in Washington.

Among the more notable recent developments in the work of bird banding should be mentioned the successful operation of a duck-trapping device of unique design, constructed and used by Mr. H. S. Osler, of Toronto, Ontario. By means of this trap he made a record of nearly one hundred bandings of black ducks during September. A black duck banded by Mr. Osler on October 15, 1918, at Port Perry, Ontario, was killed April 25, 1920, on Anticosti Island near the mouth of the St. Lawrence. Another interesting record is that of a mallard banded at Cayuga Lake, N. Y., March 18, 1918, and killed at Quill Lake, Saskatchewan, September 6, 1920.

Mr. A. H. Howell is continuing his studies of the North American chipmunks, and reports many interesting discoveries regarding unsuspected relationships.

ECONOMIC INVESTIGATIONS

Dr. Fisher plans to reach Salt Lake City by the first of October. His itinerary contemplates his being at Golden Hotel, Reno, Nev., October 5 to 8; Colonial Annex, 417 Sheldon St., San Francisco, October 9 to 12; Hollenbeck Hotel, Los Angeles, October 13 to 15; and Grant Hotel, San Diego, October 16 to 17. He will thereafter visit points in Arizona, New Mexico, and possibly some other States before his return to Washington.

Mr. Vernon Bailey is pursuing field studies regarding the life history of injurious mammals in the region of Klamath Lake, Oreg.

Mr. R. Scott Zimmerman has recently secured very interesting photographs and information relative to rat infestation in and about the city of Fargo, N. Dak., and reports that the rat problem is one of the live issues in both Dakotas. He is working on plans to inaugurate campaigns against these pests in the near future.

Mr. D. A. Gilchrist reports having put the experimental prairie-dog plats in the vicinity of Grand Canyon and Williams, Ariz., in first-class repair and that he has drowned out and captured sufficient prairie dogs to replace the animals that had escaped and to bring the numbers up to the quota planned in connection with the laying out of the experiments. He also reports that striking results are in evidence in connection with these experimental plats.

Mr. Gilchrist has obtained for use in Arizona a moving picture reel entitled "The Last Days of the Prairie Dog." This film was prepared by the Department of Agriculture, Mr. Gilchrist and his assistants serving as stars and the Arizona prairie dogs as supes in staging the scenes. Prominent moving picture houses have offered to display this film, and it will also be used at fairs, meetings of stockmen's associations, and other places where it will help to arouse interest in the work of eradicating the prairie dog.

Mr. Charles G. Poole, who was transferred from the Forest Service as forest supervisor at Lander, Wyo., to the Bureau as predatory animal inspector, reports at Reno, Nev., October 1 to take up his duties. After conferring with Mr. E. R. Sans he will proceed to Sacramento where he will be met by Mr. S. E. Piper, Field Supervisor, and the initial steps will be taken in organizing the predatory animal work in California as a separate district, The State Department of Agriculture is interested in this work and plans are being made for cooperation between the Federal and State forces with a view to putting this work on as extensive and effective a basis as possible.

Mr. Louis Knowles, who has been connected with the Forest Service, with headquarters at Hill City, S. Dak., has been transferred as predatory animal inspector in the Bureau. He is being assigned to duty in the Montana-Dakota district with Mr. R. E. Bateman, his headquarters for the present being Billings, Mont.

Dr. Karl B. Hanson has recently secured interesting results in connection with his investigations at the Experimental Fur Farm, Keeseville, N. Y. Progress is being made in working out practical treatment for the eradication of hook worms in foxes. These parasites are among the most serious ones affecting the foxes being reared under conditions of domestication. Dr. Hanson has also demonstrated the possibility of foxes becoming infected with distemper through too close association with domesticated rabbits suffering from snuffles. This is an interesting and important contribution, owing to the commonness of this disease among rabbits and the fact that fox breeders frequently keep rabbits as pets or as sources of fresh meat for the foxes, running them in pens closely connected with those occupied by the foxes.

Progress is being made in completing plans for extending poisoning campaigns against coyotes during the coming winter. Mr. Piper has recently spent much time in the field conferring with inspectors and conducting investigations to put the finishing touches on the methods to be employed. Mr. H. E. Williams has been very busily engaged in processing the large supply of strychnine that will be required for use in this work.

Members of the staff in the Division of Biological Investigations have recently completed a series of maps to show the distribution of the principal rodent pests encountered in the work in the various districts. These should prove of very great assistance and this cooperation is very much appreciated. Photographic copies will be made to be supplied to the field offices for use in planning and directing eradication campaigns.

Miss Idella Ustrud, who has been employed for some time as stenographer and clerk in the Washington office, on stenographic work and in the handling of fiscal matters, has been transferred to the Portland office. She will spend a few days enroute at her home in South Dakota and plans to reach Portland about the middle of the month. The best wishes of the Washington force go with her to her new assignment.

Mr. E. J. Kepler, who has been employed as assistant to Mr. Roosevelt and Mr. Oman in conducting rodent work in Wyoming, has resigned in order to take up the study of medicine at the University of Minnesota.

Economic Ornithology

Dr. L. L. Gardner, who was temporarily engaged in field investigations durin the summer, has taken a position in the Department of Anatomy, Vanderbilt Universit Mrs. Margaret L. Gardner, who has been preparing illustrations for a work on bird stomach examination, has resigned to accompany her husband, and to complete work for a Ph. D. Degree at Valderbilt University.

Mr. C. W. Leister, engaged in field work during the summer, has returned to Cornell University, where he will carry on instruction and extension work in ornithology and continue his course for the Ph. D. degree.

Mr. E. R. Kalmbach is continuing his work on crows in Oregon; and Mr. F. P. Metcalf, on the lake survey of Missouri.

A leaflet on "Propagation of wild Ducks" was prepared for distribution durin the month. This is a 7-page mimeographed form, the number being Bi-514.

By error in transcription, on page 4 of the September SURVEY, it was stated that the project "Relations of Reptiles and Amphibians to Agriculture" had been "afforded" by the Secretary; it should have read "approved."

BIG-GAME AND BIRD RESERVATIONS

Mr. H. F. Stone, in charge of reservations, met Dr. Nelson in Portland, Oreg. the last of September, where they conferred on matters relating to the Pacific coast reservations.

Warden Chambers reports the birth of a buffalo on the Wind Cave Game Preserve late in September. This is rather remarkable from its lateness, as such births usually occur before the first of August.

MIGRATORY BIRD TREATY AND LACEY ACTS

Chief Game Warden Lawyer attended the annual meetings of the American Fisheries Society and the International Association of Fish, Game, and Conservation Commissioners, at Ottawa, Canada, September 20 to 24. Many matters were discussed relating to the conservation of wild game, bird, and fish life, and one of special interest to the Bureau was the adoption by the latter association by unanimous vote of a resolution urging the enactment of a Federal law providing for the issuance of Federal licenses for hunting migratory birds. Another of interest requests Congress to enact suitable legislation conferring on United States commissioners the right to hear and try all cases involving violations of the Migratory Bird Treaty Act, and upon conviction to impose the penalties prescribed. Mr. Lawyer delivered an address at the meeting of Conservation Commissioners on the subject "The Value to the American People of Federal Protection of Migratory Birds." On the return trip he stopped at Albany, N. Y., and New York City, to confer with officials of the New York Conservation Commission on matters affecting the protection of migratory birds.

The Bureau is grateful to Hon. W. C. Adams, Director, Department of Conservation, Boston, Mass., and to his deputies for their hearty support and cooperation in the apprehension of persons engaged in killing sandpipers and other shorebirds in violation of the Federal law. State wardens acting as U. S. Deputy Game Wardens

cooperated extensively with Warden Stadlmeir, and as a result sixteen cases were secured, all of which have been reported for prosecution.

Warden Asmuth of Milwaukee, Wis., in a report of September 18, states that from his personal observation there are more ducks in Wisconsin this season than in the past twenty years.

Warden E. B. Whitehead, of Tallahassee, Fla., advises under date of September 11 that during official trips in his district within the past few weeks, he has seen more wood ducks than ever before.

Warden Ransom states that Cave Lake, near Medimont, Idaho, has been partially planted to wild rice, and that this is the only appreciable stand of wild rice successfully introduced into the inland lakes of the Northwest. Many mallard ducks arriving from the north remain there in spite of the fact that they are thus subject to much molestation from hunters.

Capt. B. J. Pacetti arrived with the Government boat "Swan," on September 14, at Ponce Park, Fla., where the boat will be stationed for use in patrol work in Florida waters. The trip from Greenport, Long Island, to Florida was made chiefly through inland waterways.

Warden B. R. Britton removed his official headquarters from Albuquerque to Socorro, N. Mex., effective September 16.

Warden John E. Perry, who has been in a status of leave without pay since May 4, 1920, will resume official duties on October 1. His headquarters have been changed from Vicksburg, Miss., to Memphis, Tenn.

Mr. Tudor H. Chisolm, of Charleston, S. C., resigned his position of U. S. Game Warden, effective September 15.

During September the Bureau purchased a 22-foot motor boat which has been christened "Tern," for use on the Ohio River and tributaries. It has been placed in charge of Warden Charlton and is stationed at Portsmouth, Ohio.

It is with regret that the death is announced of Mr. Joseph W. Trahan, of Abbeville, La., who was serving the Bureau in the capacity of U. S. Deputy Game Warden.

The following appointments to the position of U. S. Deputy Game Warden have been made since the last issue of THE SURVEY:

Fray F. Stone, P. O. Box 237, R. D. No. 7, Point Place, Toledo, Ohio.
Albert W. Miller, Sigma, Va.
William F. Nichols, East 10th St., Baxter Springs, Kans.
Harry E. Battey, R. D. No. 2, Killingly, Conn.
Edward L. Wells, Antler, N. Dak.
Thomas Quinn, Mullen, Nebr.
Wm. S. Maple, Lombard, Ill.
Meriwether Donaldson, R. D. No. 6, Little Rock, Ark.
Ralph T. McGrath, 7400 Dante Ave., Chicago, Ill.
Ansel V. Young, 17-27 Third St., Greenport, L. I., N. Y.

Appointments of the following U. S. Deputy Game Wardens have recently been terminated:

Walter C. Lindemann, Comfort, Tex.
John Randolph, 11 Dexter Ave., Montgomery, Ala.

Record of Cases Disposed of--Reports Received in September.

Warden	Cases	State	Violation	Fine
Bloxsom	2	Virginia	Killing waterfowl in close season	$10 each
Bloxsom	6	Virginia	Killing shorebirds in close season	$10 each
Knights	4	Maryland	Hunting ducks in close season	$50 each and costs
Smith, B.E.	2	Maine	Killing wood ducks	$40 each
Smith, B.E.	2	Maine	Killing wood ducks	$60 each
Tonkin	2	Idaho	Killing swan	$25 each
Tonkin	1	Idaho	Attempting to kill swan	$25
Total	19			$555

Cases Reported by Wardens for Prosecution.

Warden	Cases	State	Violation
Arnold*	2	Nebraska	Killing ducks close season
Barmeier and	2	Missouri	Killing heron
Babson, E.S*	1	Massachusetts	Killing sandpipers
Birsch	3	Virginia	Killing wood duck
Britton	1	New Mexico	Killing ducks in close season
Britton	1	New Mexico	Killing meadowlarks
Farnham and) Armitage*)	1	New York	Possessing insectivorous birds
Hotson*	2	Iowa	Hunting ducks after sunset
Kelsey	1	South Dakota	Killing ducks in close season
Linebaugh	1	Kentucky	Possessing robins

Cases Reported by Wardens for Prosecution--Continued.

Warden	Cases	State	Violation
Linebaugh	1	Kentucky	Killing a heron
Merrill, C.D.F*	1	Illinois	Killing a robin
Merrill	3	Illinois	Killing insectivorous birds
Merrill	1	"	Killing a wood duck
Merrill	1	"	Killing sandpipers
Mushbach	1	Dist. Columbia	Possessing a flicker
Mushbach	1	Maryland	Killing a wild duck
Smith, B.E.	9	Maine	Killing wood ducks
Smith, B.E.	5	Maine	Hunting and attempting to kill loons
Smith, C.P.S	1	Illinois	Killing a bittern
Shaver	1	Minnesota	Killing a woodpecker
Shaver	1	Minnesota	Selling wild ducks
Raeth*	1	Wisconsin	Killing a bittern
Ransom	1	Oregon	Killing band-tailed pigeons
Tonkin	3	Oregon	Killing ducks in close season
Visart	1	Arkansas	Killing a woodpecker
Visart	4	Oklahoma	Killing doves in close season
Waldorf*	1	Wyoming	Killing ducks in close season
Walker	2	Arizona	Killing ducks in close season
Whitehead	6	Georgia	Killing doves in close season
Whitehead	1	Georgia	Offering aigrettes for sale
Yerger	1	Mississippi	Killing doves in close season
Grant* and) Steele*)	2	Massachusetts	Killing sandpipers
Steele* and) Ellis*)	1	"	" "

Cases Reported by Wardens for Prosecution--Continued.

Warden	Cases	States	Violation
Leonard* and Seaman*	1	Massachusetts	Killing sandpipers
Tribou* with Seaman* and Leonard*	2	"	" "
Goodwin* and Bemis*	1	"	" "
Stadlmeir with Bemis* and Steele*	2	"	" "
Stadlmeir and Lowe*	1	"	" "
Stadlmeir and Seaman*	2	"	" "
Macker* with Leonard* and Tribou*	1	"	" "

*U. S. Deputy Game Warden.

THE SURVEY

Monthly News Bulletin of the Bureau of Biological Survey
United States Department of Agriculture

Vol. 1. Washington, D. C., November, 1920. No.11

THE SURVEY is issued for office and field men of the Biological Survey under authorization of the Chief of Bureau as a medium for furnishing information regarding the work of the Bureau, movements of the staff, changes in assignments, and news and personal items of importance, with a view to increasing the interest of the personnel in the work of the Bureau as a whole and in each one's individual work as related to it. It is intended primarily for employees and is not in any sense a publication.

GENERAL NOTES

Dr. Nelson left California for Washington on October 29, and will visit several field stations of the Bureau enroute.

The American Ornithologists' Union will hold its 38th annual meeting in the U. S. National Museum, Washington, November 8 to 11 inclusive. The first day will be devoted to business meetings and the other three to public sessions, at which papers on ornithology will be presented, several by members of the Biological Survey staff. In connection with the meeting an exhibit of illustrations of birds by the more prominent artists of America and also an exhibit showing the progress in development of ornithological art from the earliest times down to date will be held at the Library of Congress. The principal lines of ornithological work of the Biological Survey also will be illustrated by an exhibit at the National Museum.

The only publication during the month was the following:
Service and Regulatory Announcement, B. S. 35, "Regulations for the Protection of Land Fur-Bearing Animals in Alaska." P. 1, October 25, 1920. This amends the open season on foxes by making it December 1 to February 28, an extension of one month.

Mr. Frank Cassel, a teacher under the Bureau of Education, stationed on Atka Island, Alaska, was appointed cooperative deputy fur warden of this Bureau on October 26.

BIOLOGICAL INVESTIGATIONS

Dr. W. P. Taylor is visiting Tucson and other points in Arizona to look over the experimental plots established in 1918, to ascertain the amount of damage inflicted on the range by different rodents under varying circumstances. After completing a survey of the conditions there, he will proceed to La Jolla, Calif., his official headquarters.

Mr. George G. Cantwell, after taking a vacation at his home and official headquarters, Puyallup, Wash., is expected to resume field work in the northern part of the State. Present plans contemplate a continuation of the biological cross-section of Washington from the Okanagan Valley eastward, just south of the Canadian border, the western part of this section having been completed during the summer.

Mr. Vernon Bailey has completed his season's work of studying the life habits of various injurious rodents in Oregon, and has gone to Arizona, where he contemplates prosecuting similar work during the winter months. He expects to confer with Dr. W. P. Taylor and Mr. D. A. Gilchrist regarding the experimental plots.

The marriage is announced of Mr. Frederick C. Lincoln, assistant biologist of this Division, and Miss Lulu Margaret Lichtenheld, at Denver, Colo., on October 27.

ECONOMIC INVESTIGATIONS

Dr. Fisher visited points in Utah, Nevada, California, Arizona, New Mexico, and Texas during the month, conferring with predatory animal inspectors, rodent leaders, and others interested in the work which the Bureau is doing to protect crops and live stock from depredations of animal pests. He will return to Washington early in November.

California has been set aside as a distinct predatory animal district, in accordance with plans which have been completed for some time, the step having been delayed until a suitable man could be found to take charge of the work. Mr. C. G. Poole was transferred to this work from the Forest Service on October 1. After a conference with Mr. E. R. Sans, who up to this time has been in charge of the California work in connection with that of Nevada, Mr. Poole went to Sacramento, where he met Dr. Fisher, Dr. Nelson, and Mr. S. E. Piper. Plans for cooperative work in predatory animal control were discussed by these representatives of the Bureau with Mr. G. H. Hecke, Director of the California Department of Agriculture, and Mr. W. C. Jacobsen, State Superintendent of Rodent Control, and an outline of procedure drawn up and approved. Mr. Poole is now actively at work putting the program into effect.

Messrs. S. E. Piper, field supervisor; L. J. Goldman, predatory animal inspector, Idaho; and Stanley G. Jewett, predatory animal inspector, Oregon, spent some time during the month outlining and launching an extended poisoning campaign against coyotes in the Owyhee Valley in Idaho and Oregon.

Two notable kills have been reported from the Wyoming-South Dakota District Near Dubois, Wyo., Hunter Wm. Rowley succeeded in trapping a huge grizzly bear that for the last two or three years has been responsible for much loss of live stock, besides destroying Forest Service fire boxes, tearing up camps, and making himself generally obnoxious in the locality. Fifteen cattle were found killed by this bear while Mr. Rowley was trailing him. All the cattle were killed in essentially the same way, by a heavy blow over the eyes. The bear appeared to satisfy himself with eating small tidbits like the liver of the victims and leaving them.

The other animal killed is that which has come to be known as the Custer wolf. This animal is reported by stockmen to have destoryed not less than $25,000 worth of cattle in the vicinity of Custer during the last six or seven years. He has long escaped the strenuous efforts of local trappers and sportsmen who were spurred on by the large bounty offered for his capture. Stockmen of the vicinity had given up all hope that this animal would be taken and considered it a foregone conclusion that they would have to board him until he died a natural death. Hunter Williams was put on the trail of the wolf and after a long and arduous hunt, succeeded in getting him. The animal was exceedingly wily and, according to Mr. Bayer, "just plain lucky" in making a number of narrow escapes from Mr. Williams. Both Mr. Williams and Inspector Bayer have the hearty congratulations of the Bureau. This is an especially interesting and significant kill because of the seriousness of the damage caused by this wolf, the extended but vain efforts of private trappers to take him, and this final demonstration that the Bureau organization actually can get the worst of these offenders against live-stock men.

A number of the field men report that the Department exhibit of material, illustrating, among other features of the activities of this Bureau, the rodent and predatory animal work, proved of very great interest to those in attendance at the various fairs. In practically all cases the Departmental exhibit was supplemented by material supplied by local representatives of the Bureau engaged in rodent-predatory animal work, who also took this opportunity of discussing our work with the visiting farmers and stockmen,

Mr. R. S. Zimmerman has succeeded in arousing the interest and securing the support of city officials, the commercial club, and several local organizations of Fargo, N. Dak., in a carefully planned and organized rat-extermination campaign in that city. Mr. Zimmerman and the local health officials have already treated the city garbage dump, which was swarming with rats, with bait poisoned with barium carbonate. This preliminary work has resulted in a very noticeable decrease in the number of the animals infesting this place, which was a source of infestation for the entire city and of the Agricultural College grounds and buildings.

Mr. Benjamin Melton has also been engaged in organized campaigns against rats in Oklahoma. It is evident that the publicity campaign conducted by the Bureau is bearing fruit and that the time is ripe in many sections for inaugurating carefully planned and conducted campaigns against these seriously destructive animals.

Mr. A. E. Gray, who was for several years connected with the Public Health Service in California, engaged in rodent-eradication work, and more recently connected with the Rodent Control Division of the State Department of Agriculture, has accepted appointment with the Bureau as leader of the rodent work in Texas. The Bureau has been anxious to enlarge and develop the rodent work started in Texas several years ago by Messrs. Gilchrist and Crick. This has been delayed until a man could be located capable of coping with the enormous area and diverse and important rodent problems in this State. It is believed that Mr. Gray, with his extended experience and tried ability, will be able to set a pace in Texas which will make it interesting for leaders of the other established districts.

The leadership of the predatory animal work in New Mexico has been turned over temporarily to Mr. Charles F. Bliss, during the absence of Mr. J. S. Ligon, Predatory Animal Irspector, who will be engaged for some time upon a special assignment. Since leaving New Mexico, Mr. Ligon has visited Inspector Pope in the Oklahoma-Arkansas district and assisted him in establishing the cooperative work there. He has also visited stockmen in southwestern Missouri for the purpose of assisting them in combating wolves which have proved so seriously destructive in that locality as to cause the stockmen to appeal to the Bureau for help. After completing work in Missouri, Mr. Ligon will assist the State Game Department in inaugurating a campaign against wolves and coyotes in Michigan where these animals have proved seriously destructive of live stock and game. Mr. Ligon will then come to Washington for work in completing the preparation of a special report on wolves and means of destroying them.

Plans are now developed for launching campaigns against jack rabbits in a number of the Western States where these animals are particularly destructive of crops, forage, and hay.

A few red foxes have recently been obtained in order to enable Dr. Hanson to carry out plans at the Experimental Fur Farm, Keeseville, N. Y., for the study of the parasites to which silver and black foxes are subject, and of means of prevention and cure of diseases of foxes.

Reports which have been received regarding predatory animals taken during the month of September show that many notable catches have been made and that a very high average has been attained in a number of the districts. So far as reports have been received, Hunter Joe Smith, of Eagle Pass, Tex., appears to be high man, with a catch of 64 coyotes in 30 days. A considerable number of men exceeded 30, and conditions generally appear to have been very favorable for capturing animals during the month.

It is with regret that we announce the death of Miss Blanche Chadwell, October 19, 1920. Miss Chadwell was a valued member of the clerical staff of this Division of the Washington office.

Mr. J. E. Braden resigned as clerk in the Denver office on October 2 to take up work with the National Cash Register Company. The vacancy thus occasioned will be filled by the appointment of Mr. P. M. Thompson, of Des Moines, Iowa.

Mr. H. E. Williams, who has been doing important work in connection with the development of special poisoning methods at the Albuquerque laboratory and in the field, spent part of the month of October with Mr. C. R. Landon, Predatory Animal Inspector in Texas, assisting in organizing and launching an extended poisoning campaign against coyotes in that State.

Mr. Louis Knowles took up his duties as Predatory Animal Inspector with Mr. R. E. Bateman in the Montana-North Dakota District on October 1.

Miss Agnes Reed has recently been appointed as a clerk in the Washington office of the Division.

Economic Ornithology

Mr. W. L. McAtee visited Mr. J. von Lengerke in the mountainous region of New Jersey, from October 6 to October 17, gaining information regarding his methods of studying, decoying, and collecting hawks and crows.

Mr. McAtee visited Johns Hopkins University on October 28 to assist in planning a bird attraction project and to lecture before the Biological Club on the Value of Birds to Agriculture.

Mr. Charles C. Sperry has departed for Arlington, Mass., to resume his investigation of the bird enemies of the European corn-borer.

Mr. E. R. Kalmbach is now investigating the serious depredations of crows in Oklahoma, with a view to alleviating what has become there a serious situation, He is receiving the hearty cooperation of County Agents, and of business men's and farmers' organizations.

MAMMAL AND BIRD RESERVATIONS

The Mille Lacs National Bird Reservation in Minnesota was enlarged on October 13 by Executive order, to include a small island in the southern part of the lake of the same name.

Warden Hodges reports that 24 Chinese or ring-necked pheasants were received from the Montana State Game and Fish Commission in September, and turned loose on the National Bison Range.

MIGRATORY BIRD TREATY AND LACEY ACTS

Chief Game Warden Lawyer delivered an address before the annual meeting of the Maryland State Game and Fish Protective Association at Baltimore, Md., on October 21. Many matters relating to migratory bird protection were discussed at the meeting.

Warden Mushbach, who has been assisting in the Washington Office for the past several weeks, has returned to his official headquarters in Billings, Mont.

Mr. Irving C. Emmett, 2651 Van Buren Avenue, Ogden, Utah, has resigned his position as U. S. Game Warden, effective October 15, 1920.

Mr. William E. Clancy, of Chinook, Wash., has tendered his resignation from the position of U. S. Deputy Game Warden.

The Bureau has just learned with regret of the death of U. S. Deputy Game Warden William E. Shuttles, 1521 Commerce St., Dallas, Tex.

Record of Cases Disposed of - Reports Received in October.

Warden	Cases	State	Violation	Fine
Asmuth	9	Iowa	Possessing ducks in storage during close season	$1 and costs each
Britton	1	New Mexico	Killing meadowlarks	$25 and costs
Britton	4	New Mexico	Killing ducks in close season.	$25 and costs each
Britton	1	New Mexico	Killing doves in close season	$50 and costs
Linebaugh	2	Texas	Possessing ducks in storage during close season	$10 each
Linebaugh	1	Texas	Offering aigrettes for sale.	$100 and forfeiture of plumes.
Shaver	1	Minnesota	Selling aigrettes	$0.50
Smith, B. E.	2	Maine	Killing wood ducks	$25 each
Smith, B. E.	1	Maine	Killing wood ducks	$60
Yerger	4	Mississippi	Killing doves in close season	$300 bond forfeited by each. Warrants issued for rearrest
Yerger	1	Mississippi	Selling and possessing ducks in close season	$25 and costs
Yerger	1	Mississippi	Purchasing and possessing ducks in close season	$10 and costs

Cases Reported by Wardens and Deputies for Prosecution.

Warden	Cases	State	Violation
Asmuth	6	Wisconsin	Killing coots before sunrise
Bloxsom	2	Delaware	Killing and possessing ducks in close season.
Bloxsom	2	Virginia	Selling wild ducks.
Bloxsom	1	Virginia	Killing bull-bats (nighthawks)
Britton	3	New Mexico	Killing ducks in close season
Charlton	2	Michigan	Shooting coots after sunset
Deming *	1	New York	Killing a heron.
Hoffman	1	Alabama	Killing meadowlarks, cuckoo, and a dove
Hoffman	2	Alabama	Killing grebes
Holmes	1	Nebraska	Offering aigrettes for sale
Ireland	3	Michigan	Killing insectivorous birds
Linebaugh	4	Mississippi	Killing doves
MacGary*	5	Indiana	Killing waterfowl in close season.
Mecarta*	1	Massachusetts	Killing sandpipers.
Pacetti	1	Florida	Killing doves in close season
Pacetti	1	Florida	Shooting at grebe and ducks in close season
Perry	3	Mississippi	Killing doves in close season
Ransom	2	Washington	Possessing a gull and grebe in close season
Ransom	5	Idaho	Killing dove in close season and shooting after sunset.
Ransom	1	Idaho	Possessing a grebe
Ransom	1	Montana	Possessing and shipping a swan
Ransom			

Cases Reported by Wardens and Deputies for Prosecution--Continued.

Warden	Cases	State	Violation
Ransom and Steele	2	Washington	Possessing ducks in storage in close season
Sc[illegible]	2	Massachusetts	Killing sandpipers
Shaver	6	Minnesota	Killing ducks after sunset
Shupee	2	Texas	Hunting ducks in close season
Shupee	9	Texas	Killing doves after sunset
Smith, C.P.S.	1	Iowa	Killing a flicker
Stadlmeir	1	Rhode Island	Possessing recently killed egret
Stadlmeir	3	Massachusetts	Possession live wild ducks captured without permit and selling eggs.
Steele	1	Washington	Possessing and delivering protected birds to taxidermist for mounting
Steele	2	Washington	Possessing insectivorous birds
Steele and Tonkin	1	Oregon	Killing band-tailed pigeons
Vanselow*	1	Illinois	Killing sandpipers
Whitehead	1	Florida	Killing a heron

* Deputy Game Wardens:

The following appointments were made to the position of U. S. Deputy Game Warden during the month:

Clinton J. Riley, R. D. No. 24, So. Akron, Ohio.
Geo. L. Hoffman, Office of the Solicitor, Dept. of Agriculture.
Harry C. Anderson, 210 E. 2d St., Washington, N. C.
Peter Vredenburgh, 138 W. Main St., Freehold, N. J.
Andy C. Stricklin, Cotton, Ga.
Geo. T. Simmons, Rosemary, N. C.
William Baker, Pratt, Kans.
John R. Srofe, Winchester, Ohio.
Robert J. Fitzgerald, 420 E. 7th St., San Angelo, Tex.

Importation of Foreign Birds and Animals.

Permit was issued for the entry on October 25, of 30 silver foxes from Prince Edward Island, consigned to the Ontario Stock Farm in Lake Ontario, of which Dr. Ned Dearborn, formerly of this Bureau, is Fur Culturist. A recent letter from Dr. Dearborn indicates that he has nearly completed the inclosures necessary for the new arrivals on the fur ranch.

THE SURVEY

Monthly News Bulletin of the Bureau of Biological Survey
United States Department of Agriculture

Vol. 1. Washington, D. C., December, 1920. No. 12

THE SURVEY is issued for office and field men of the Biological Survey under authorization of the Chief of Bureau as a medium for furnishing information regarding the work of the Bureau, movements of the staff, changes in assignments, and news and personal items of importance, with a view to increasing the interest of the personnel in the work of the Bureau as a whole and in each one's individual work as related to it. It is intended primarily for employees and is not in any sense a publication.

GENERAL NOTES

Dr. Nelson reached Washington on November 13, after a very successful trip in Alaska, during which he obtained much valuable information along the lines of the Bureau's activities. Among the places he visited were the whaling station at Akutan in the Aleutian Chain, Nome, St. Michaels, and Fairbanks, the last named being reached after a steamer trip up the Yukon and Tanana Rivers. The return trip to the coast, at Cordova, was by overland auto-stage line, 300 miles to the Copper River Railroad. Before leaving the Territory he visited the Kenai Peninsula and points on the southern coast.

Dr. Seymour Hadwen and Mr. L. J. Palmer, with their assistants, Dr. G. F. Root and Mr. H. W. Johnson, were established at the reindeer experiment station at Unalakleet, where they have entered on the reindeer investigations with great enthusiasm and are reporting most interesting and practical results. The outcome of their work promises a great change for the better in the reindeer industry, which undoubtedly has a great future on the Arctic coast.

Mr. O. J. Murie accompanied Dr. Nelson to Fairbanks and then proceeded to a point about 100 miles to the northeast, into the midst of the great herds of migrating caribou, numbering several hundred thousand. During the next twelve months he will spend the greater part of the time studying the habits and migrations of these animals which constitute one of the surviving great aggregations of the caribou which formerly were scattered over suitable parts of Alaska. Their continued existence is of the utmost economic importance to the miners and other pioneers who are developing the territory in which they are found.

At the request of Representative McLaughlin and of the silver black fox farmers at Muskegon, Mich., Dr. Nelson stopped at Muskegon on his return from the West, and found a remarkable development of the fur industry in that district. On the various farms are between one and two thousand foxes. While the business has become notably successful, the urgent need has become evident for scientific

investigations of the parasitology and diseases of foxes and of methods of feeding the animals. The Muskegon farmers are urging the establishment by the Biological Survey of a laboratory there in order to provide the needed assistance in developing the industry and placing it on a permanently successful basis.

Shipments of pelts of Alaska fur-bearing animals have numbered nearly 500 since July 1, according to reports made to the Bureau. About two-thirds of these were by parcel post, the largest numbers being muskrat and mink skins.

Mr. Harry Peehan, of Kellisnoo, Alaska, has been appointed deputy fur warden for the Kootznahoo region of Southestern Alaska.

The exhibit of paintings and photographs of birds by American contributors, held in the Library of Congress in connection with the thirty-eighth stated meeting of the American Ornithologists' Union, contained pictures by 24 photographers and 26 artists. Three of the photographers are on the staff of the Biological Survey or were at the time the pictures they exhibited were made; namely, Messrs. E. A. Goldman, G. R. Salisbury, and Dr. Alexander Wetmore. One of the artists also is a Biological Survey man, Mr. E. R. Kalmbach. The paintings he exhibited were of the great horned owl, kingfisher, crow, starling, Arkansas goldfinch, and western bluebird.

An exhibit of the work produced by artists of the Department of Agriculture is being held at the Corcoran Gallery of Art, December 1 to 12. Several of the Bureaus are represented, the Biological Survey by two paintings of Mr. E. R. Kalmbach. One pictures an evening flight of crows toward their nightly roost, and the other shows the various plumages of the starling. The latter is being reproduced in color as the frontispiece of the Department Bulletin on the starling, by Messrs. Kalmbach and Gabrielson, now in press.

Publications issued during the month were-

Yearbook (1919) Separate 823, "Trapping on the Farm," by Ned Dearborn, Assistant Biologist; pp. 451-484, figs. 1-23; date received, November 1, 1920.

Service and Regulatory Announcement, B. S. 36, "Operation of Motor Boats on Big Lake Reservation in the State of Arkansas"; p. 1, November 22, 1920.

Mr. Raymond Johns, of the Section of Accounts, will be transferred on December 10 to the Division of Publications at an increased salary. The vacancy will be filled by the transfer from the Office of Finance, War Department, of Mrs. Jessie M. Stabler.

BIOLOGICAL INVESTIGATIONS

Messrs. Francis Harper, Hamilton M. Laing, and J. Alden Loring have returned from the Athabaska Lake region of Canada, where they spent the season investigating the animal life, with particular reference to the breeding and migratory waterfowl. After the close of the nesting season, about two months

were spent in making general collections on lower Peace River, in the Athabaska Delta, and in the Clearwater River region. Here a fine bull caribou of the woodland type, a particularly desirable specimen, was secured. The season's collection, which has arrived in good order, comprises over 1,500 birds and mammals, besides numerous batrachians, fishes, insects, amd plants. They include some new records for the region, and various specimens representing extensions of range. The notes and other records of the combined party contain a vast fund of information of the life of the region, with special reference to the breeding habits of birds.

Mr. George G. Cantwell has resumed field work in northeastern Washington.

Mr. Vernon Bailey is continuing studies of the life habits of injurious rodents in Arizona, with Tucson as his present headquarters.

Mr. Arthur H. Howell was called to Long Island, N. Y., by the sudden death of his father, November 30. He has the sympathy of the Biological Survey in his loss.

Miss Myra A. Putnam was appointed typist in this Division on November 16.

ECONOMIC INVESTIGATIONS

Dr. Fisher returned from his western trip early in the month, in time to take an active part in the meeting of the American Ornithologists' Union held at Washington, D. C., November 9-11. Dr. Fisher is one of the founders of this organization and has had an important part in developing its work.

Dr. W. B. Bell attended the International Live Silver Fox Exhibition at Montreal, November 24-26. About 400 animals of Alaskan and Prince Edward Island stock were entered in competition for the 64 prizes offered. The animals exhibited were the pick of the approximately 20,000 foxes reported as being reared on fox farms in Canada at the present time. The fox that made the highest individual score rated on points at 96 1/3. A live interest in this exhibition was taken both by exhibitors and by officials of the Canadian Department of Agriculture and the Commission of Conservation.

Returning from the exhibition Dr. Bell stopped in New York to investigate fur market conditions and confer with representatives of firms that handle large quantities of furs.

Dr. Glen R. Bach has advised that he willreport for duty to Predatory Animal Inspector Bayer in the Wyoming district, December 1. Dr. Bach has been connected with the State Veterinary Department in Montana for some time and we are glad to have him associated with the Bureau in its predatory animal work.

Mr. S. E. Piper, after completing important experiments and demonstrations in methods of poisoning coyotes in Oregon and Idaho, went to California where he has assisted in launching the predatory animal campaign organized by the Bureau in cooperation with the State Department of Agriculture. He has also conducted investigations with a view to improving methods of poisoning ground squirrels in that State.

Mr. J. S. Ligon, Predatory Animal Inspector in New Mexico, has been assigned temporarily to special work in Missouri and Michigan. He has completed the work in Missouri and is now endeavoring to get a line on wolf and

coyote conditions in Michigan, Wisconsin, and Minnesota. The problem of wolf and coyote control in this region assumes international proportions on account of the fact that animals come in from Canada.

Mr. Ligon is meeting with very active cooperation on the part of the State Game Department in Michigan and the stockmen who are interested in the development of this work, and prospects are good for the launching of an importan service in this State.

Announcement has been received of the marriage of Mr. Joseph Keyes, Biological Assistant, in charge of rodent control work in Colorado, to Miss Augusta Dougan on November 10. They will be at home at 1863 Lincoln Street, Denver, Colorado. Congratulations are in order.

One of the important catches of the month of October was reported by Mr. E. F. Pope, in charge of the Oklahoma-Arkansas district. Hunter McCafferty on October 31 took a notorious old timber wolf which was leader of a pack that had been preying heavily on live stock in the vicinity of the Arkansas National Forest. Mr. McCafferty succeeded in taking this animal within two days after taking his trail. Stockmen and hunters of the locality had practically given up all hope that the animal would be taken, and one prominent ranchman had offered to eat a nice large steak from him whenever he might be captured. The taking of this animal has awakened great interest among the stockmen and has been an important factor in winning their confidence and cooperation. Early in November two more of this pack of wolves, as well as a bobcat, were taken by Mr. McCafferty.

The stockmen are greatly pleased over the destruction of these animals which have cost them thousands of dollars annually in live stock destroyed. As a result of investigations which Mr. Pope has made, it is evident that losses of live stock and poultry from predatory animals and their interference with the development of the live-stock business in Oklahoma and Arkansas are much more serious than had been realized.

Mr. Gilchrist and his staff of rodent assistants staged a big jack-rabbit drive at Avondale, 18 miles west of Phoenix, Ariz., in November. Some 300 farmers and others were present and took part in the drive, among them being 160 armed with guns. Officials of the Southwestern Cotton Company and many of their men were present to help. Representatives of the Fox Film News and the Pathe Weekly Film News were present and took moving pictures of the event. As a result of the drive 1,920 acres of brush land were cleared of rabbits and 1,200 jack-rabbit tails were turned in. These rabbits are reported to have destroyed over $40,000 worth of cotton last year. In connection with this drive, $142.50 worth of ammunition was used, this being the chief item of expense to those who took part in it.

Mr. Ira N. Gabrielson, Assistant Biologist, in charge of rodent operations for the State of Oregon, was one of the five elected to membership in the American Ornithologists' Union, at the annual meeting last month.

Mr. Edward Tallman resigned his position as Biological Assistant in the Nevada district on November 2.

Economic Ornithology

Mr. F. P. Metcalf has returned from an extended trip through Missouri, Illinois, and North Dakota, during which he made surveys of the marsh and aquatic vegetation of a great many bodies of water.

Mr. Charles C. Sperry has completed his second trip of the year for the investigation of bird enemies of the European corn borer. The ring-necked pheasant and starling, both introduced birds, are the only species thus far found to feed on this imported pest.

MAMMAL AND BIRD RESERVATIONS

Mr. H. F. Stone, Assistant in Charge of Mammal and Bird Reservations, returned to the office on November 3 after a ten weeks' tour of inspection of twenty-four of the western bird and big-game reservations, and five prospective bird reservations. He reports that the animals on the big game preserves have increased to a gratifying extent and that they are in excellent condition; also, that the bird reservations have great possibilities of development, so that much progress can be looked for as time goes on.

"Kalispell Chief," leader of the buffalo herd on the National Bison Range, since the establishment of the reservation in 1909, is reported by Warden Hodges as still alive and in good healthy condition. He was presented to the American Bison Society by the Conrad Estate at the time the herd was placed on the range, and was said at that time to be 7 years old. The bull next in age to "Kalispell Chief," known as "Ravalli Chief," one of the Conrad herd purchased by the Bison Society, died January 3, 1920. Warden Hodges also reports 45 antelope on the range.

MIGRATORY BIRD TREATY AND LACEY ACTS

Chief Warden Lawyer attended the meeting of the State game warden force and the annual convention of the Virginia Game and Game Fish Protective Association in Richmond, November 10 and 11. He reports a very enthusiastic and interesting meeting. Wardens Bloxsom and Birsch were present, and the numbers of ideas exchanged between the Federal and State representatives will it is hoped be of mutual assistance in the enforcement of the game laws.

Mr. Lawyer accompanied Secretary Meredith and his son on a hunting trip to Rock Point, Md., November 13, from which place he proceeded in the "Curlew" with Deputy Warden Leach to Fishing Bay, Md., where investigations of reports of violations were conducted.

Wardens Barmeier, Holmes, and C. P. S. Smith, while on special assignment in the vicinity of Kansas City, Mo., apprehended 25 persons hunting wild ducks from motor boats and were thus instrumental in reducing violations of this character to a minimum.

As a result of cooperation between the Louisiana Conservation Commission and this Bureau several cases involving the sale of wild ducks and of exceeding the bag limit have been obtained in the vicinity of New Orleans. Persons found selling ducks were arrested and arraigned before a U. S. Commissioner, each furnishing bond in the amount of $500 for appearance at the next term of Federal court. More arrests will follow. As a result of these operations several hundred wild ducks were seized and placed in cold storage for use as evidence. Warden Hoffman, of Mobile, Ala., represented the Bureau in the clean-up.

The death is recorded of Jean, the five-year-old daughter of Mr. Frank L. Earnshaw, of this Division, on November 22. Mr. Earnshaw has the sympathy of the Bureau in his bereavement.

Record of Cases Disposed of - Reports Received in October.

Warden	Cases	State	Violation	Fine
Barmeier	3	Iowa	Killing ducks in close season	$10 and costs each
Barmeier	1	Iowa	Killing ducks in close season	$10 and costs
Barmeier	1	Missouri	Killing goose in close season	$1 and costs of $12.83
Holmes and Smittle*	3	Iowa	Killing ducks in close season	$10 and costs each
Kelsey and Johnson L. P*	3	So. Dakota	Hunting ducks after sunset	$25 each
Mushbach	6	Montana	Killing herons	$102. and costs each
Pacetti and Knights	1	Georgia	Selling ducks	$25
Seaman*, Lowe*, and Stadlmeir	1	Massachusetts	Killing sandpipers	$10
Visart	5	Arkansas	Hunting after sunset	$1 and costs of $11.40 each
Visart	4	Oklahoma	Possessing swan	$25 and costs each
Visart	1	Arkansas	Possessing ducks in close season	$10 and costs
Visart	1	Arkansas	Selling ducks	$10 and costs
Waldorf*	1	Wyoming	Killing ducks in close season	$50
Whitehead	5	Georgia	Killing doves in close season	$25 each
Whitehead	4	Georgia	Killing doves in close season	$10 each

* U. S. Deputy Game Warden

Cases Reported by Wardens and Deputies for Prosecution

Warden	Cases	State	Violation
Babson *	1	Massachusetts	Killing a grebe
Barmeier and Holmes	2	Kansas	Hunting waterfowl from motor boat
Birsch	1	North Carolina	Killing meadowlarks
Bloxsom	2	Virginia	Killing bull-bats (night-hawks)
Bloxsom	2	Maryland	Hunting ducks in close season
Hilliard and Farnham	1	New Jersey	Hunting ducks after sunset
Hoffman	1	Alabama	Killing insectivorous birds
Hoffman	1	Alabama	Killing wood duck
Ireland*	6	Michigan	Shooting at ducks after sunset
Linebaugh	1	Mississippi	Killing mourning doves in close season
Linebaugh	2	Tennessee	Killing wood ducks
Merrill	1	Missouri	Hunting waterfowl from motor boat
Pacetti	1	Florida	Hunting waterfowl from motor boat
Pacetti	1	Florida	Possessing and offering robins for sale
Perry	8	Mississippi	Hunting ducks after sunset
Ransom	2	Montana	Attempting to kill ducks after sunset
Ransom	5	Montana	Killing grebes
Ransom	1	Idaho	Possessing grebe
Ransom	1	Oregon	Killing band-tailed pigeons

Cases Reported by Wardens and Deputies for Prosecution--Continued.

Warden	Cases	State	Violation
Shupee	2	Texas	Hunting ducks after sunset
Shupee	3	Texas	Killing meadowlarks
Shupee	2	Texas	Killing bitterns
Steele, O. D.*	10	Massachusetts	Shooting at ducks from sailboats
Stone.*	3	Michigan	Hunting ducks after sunset
Wheeler *	1	Massachusetts	Killing sandpipers
Wheeler *	1	Massachusetts	Hunting ducks after sunset

*U. S. Deputy Game Warden

The following appointments have been made to the position of U. S. Deputy Game Warden:

Robert B. Pacetti, 919 Bedford Ave., Brooklyn, N. Y.
Herbert J. Frost, 20 Plateau Circle, Bronxville, N. Y.
Dr. Cahall Sipple, Bradford St., Dover, Del.
Roderick D. Fleming, R. D. No. 3, Fort Wayne, Ind.
Arthur Thomas, 2107 W. 16th St., Little Rock, Ark.
Carl E. H. Bergquist, 11350 Edbrooke Ave., Chicago, Ill.
Raymond S. Hughes, 1416 Wyoming St., El Paso, Texas.
Chester W. Daye, Shakopee, Minn.
Walter Hoemig, 1649 Cass St., Fort Wayne, Ind.
William D. Ellis, Weldon, Pa.
Albert Stoll, Jr., Birmingham, Mich.

Importations of Foreign Birds and Animals

The traffic in German canaries, which was suspended during the war, has recently begun to revive and importations are now frequently received. Since October 15, permits have been issued for the entry at New York of 15,847 canaries, all shipped from the port of Hamburg, Germany.

On November 15, the season opened for the importation of quail from northeastern Mexico. In order to be sure that the birds are free from quail disease they are quarantined for ten days at the port of entry before being allowed to proceed on their way. During the first two weeks of the season permits were issued for the entry of 5,200 quail, all of which were entered and quarantined at the port of Brownsville, Tex.